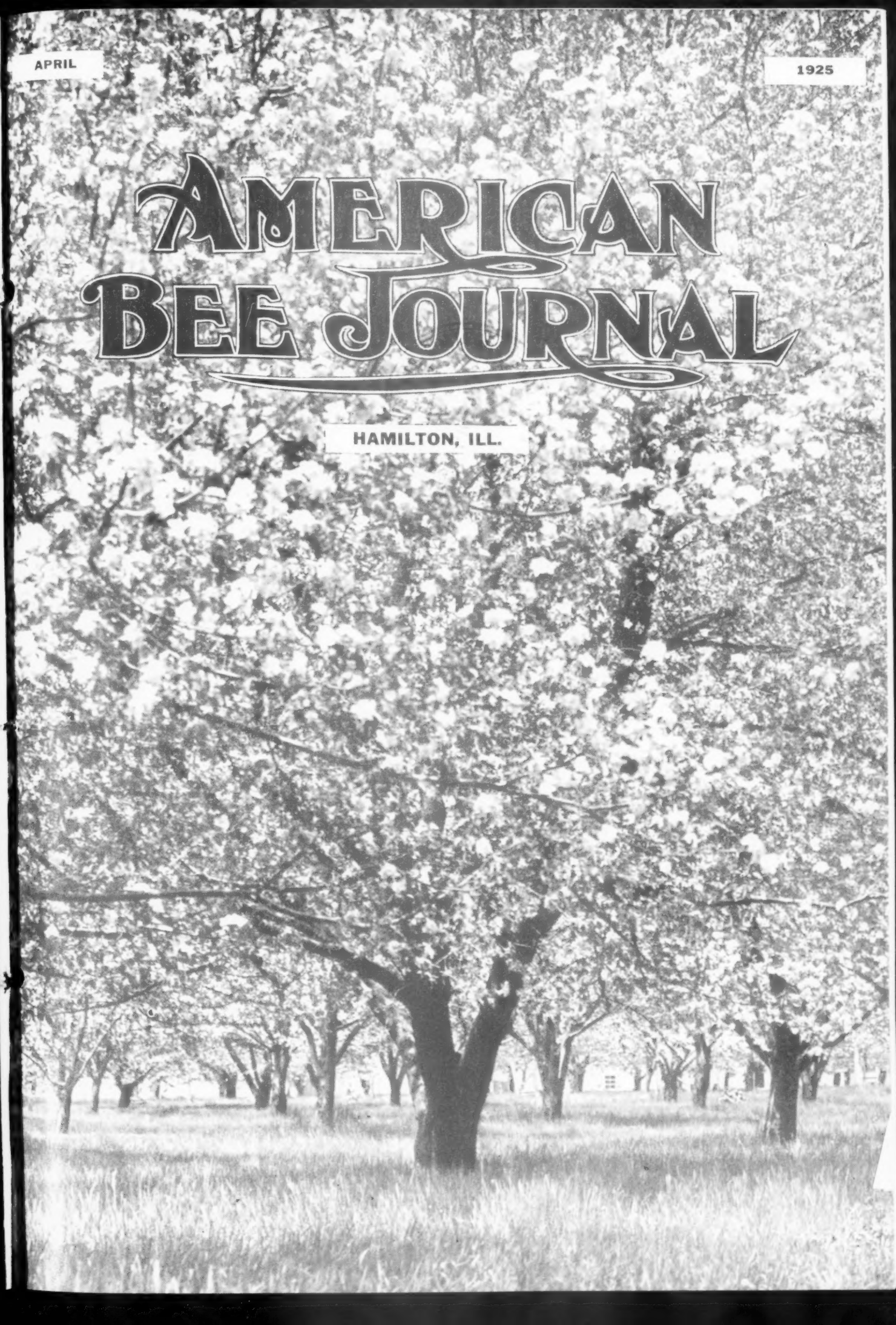
APRIL

1925

AMERICAN BEE JOURNAL

HAMILTON, ILL.



"The results from WIRED FOUNDATION were far beyond my expectations"

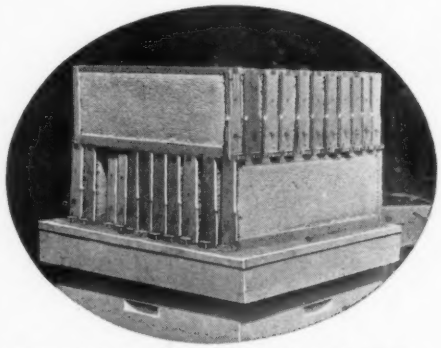
Says Dr. M. C. Tanquary, Fargo, North Dakota

Dr. Tanquary is well entitled to an opinion. He was formerly State Entomologist of Texas, with entire supervision of the States beekeeping work—inspection, field work, and research. His success in honey production, however has made him one of our leading beekeepers. He has over 1,000 colonies, located in Texas, Kansas and North Dakota.

One of the North Dakota Yards—package bees May 10th, 1924—in Modified Dadant Hives on Wired Foundation—average crop 150 pounds per colony.

Dr. Tanquary writes: "I take great pleasure in giving you the results of my work this year with Wired Foundation. I started in the spring without a single drawn comb, and placed package bees in 250 Modified Dadant hives on Wired Foundation. The results were far beyond my expectations. Because of the backward spring, the bees were put out in very cold, disagreeable weather, yet in a very short time they had drawn out the sheets of foundation into the most beautiful worker combs imaginable. Later, it seemed to me that almost a whole colony of workers emerged from every brood comb, and soon the hives were overflowing with bees. The super combs were just as nearly perfect as those of the brood chamber and, when extracting time came, I hauled many of these fresh combs a distance of 12 miles without having a single one break.

"Wired Foundation is the best I have ever used and I am having all of my wax from this year's crop made up into that kind for next year."



Some of the extracting combs from Wired Foundation—Every inch honey

When you plan your foundation buying
Consider what this means to you

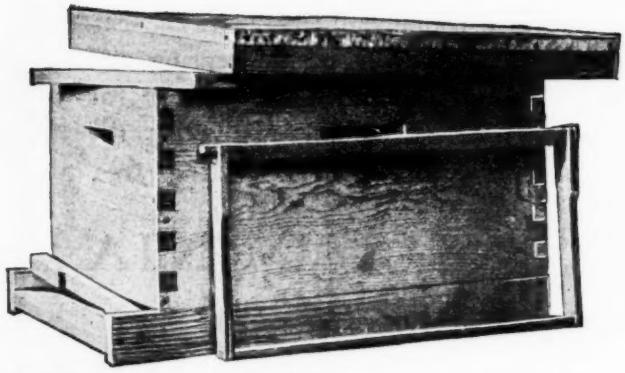
BADANT'S WIRED NON SAG FOUNDATION

Dadant & Sons, Hamilton, Illinois

BADANT'S WIRED NON SAG FOUNDATION

Makers of Dadant's Famous Foundations
Wired—Plain—Surplus

Sold by dealers everywhere—Write for name of nearest dealer



Metal Cover Hives

With Inner Covers

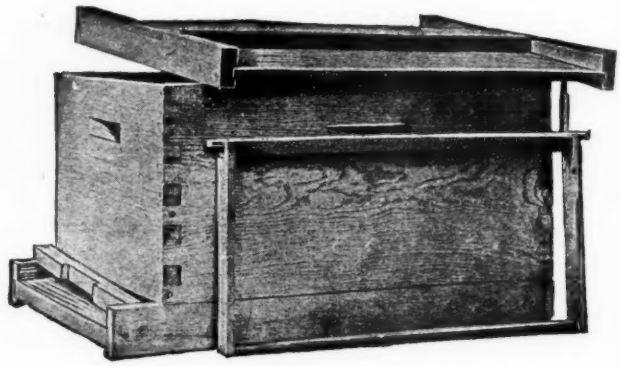
Quality in every inch has been our motto in building these hives. The cover is made of heavy white pine covered with heavy gauge galvanized iron—will last a life time. The body and in fact all the lumber used in our hives, supers and frames is clear white soft pine. All parts are full thickness, lumber perfectly smooth and exact in fitting. See our guarantee. Hives include metal cover, inner cover, body, frames, bottom board, tin rabbet and nails. Write for our catalog.

10 fr. size in lots of 5 - - - - - - - - - - - - - - - - - - $2.89 each
8 fr. size in lots of 5 - - - - - - - - - - - - - - - - - - 2.58 each

Excelsior Wood Cover Hives

These hives are exactly the same as the above, except the covers which are made of wood and do not use an inner cover. Direct sales without dealer's margin is the reason for these saving prices to you. Write for our 1925 catalog—Free.

10 fr. size in lots of 5 - - $2.39 each
8 fr. size in lots of 5 - - 2.19 each

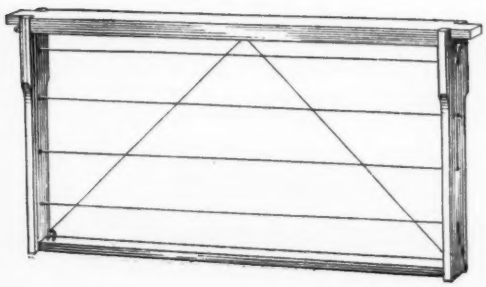


Comb Foundation

Medium Brood, 5-lb. Boxes - - - - - - - - - - 65c per lb.

Our Thrifty comb foundation will save you money on purchase price and honey crop. Fresh foundation! That is the reason bees work on any brand of foundation first—Our production per day is 1,200 lbs. We make it fresh—you and your bees will like it. For 100% non-sagging combs, wire like the picture of the frame.

	Sheets to lb.	1 to 4 lbs.	5 to 24 lbs.	25 to 50 lbs.
Heavy Brood	6½	$0.67	$0.60	$0.55
Medium Brood	7½–8	.70	.65	.60
Light Brood	9–10	.72	.67	.63
Thin Surplus	28–30	.80	.70	.65
Ex. Thin Surplus	30–32	.82	.73	.68



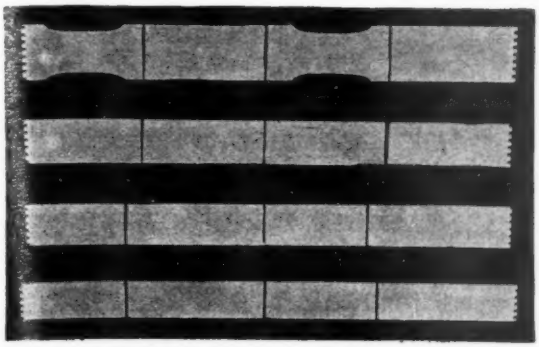
FRAMES

Hoffman Heavy Corner Cut	$5.45 per 100
Shallow Ext. Frames 5⅜ inches	4.35 per 100
Shallow Ext. Frames 4½ inches	4.35 per 100
Shallow Ext. Frames Heavy Top	5.00 per 100
Metal Spaced Frames	7.25 per 100

See Next Page

The Fred W. Muth Co. →

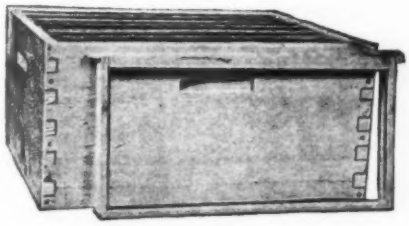
Sections



Clear Basswood—sharp knives—careful selection of grades and perfect packing make our quality stand out as one of the best. See our guarantee.

	100 Lot		500 Lot		1,000 Lot	
	No. 1	No. 2	No. 1	No. 2	No. 1	No. 2
4¼ x 1⅞ Sec.	$1.30	$1.20	$5.85	$5.55	$11.35	$10.60
All plain sizes	1.15	1.00	5.35	4.70	10.40	9.40

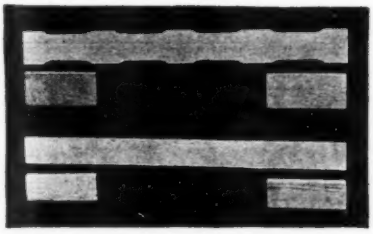
Hive Bodies



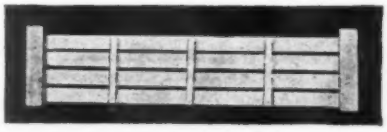
These are the same as one-story hive but without covers or bottom boards. Quality with saving is what you buy when you deal with Muth. Get our complete catalog—Free.

5–10-Frame Bodies with Frames.....$6.20 per crate
5– 8-Frame Bodies with Frames..... 5.65 per crate

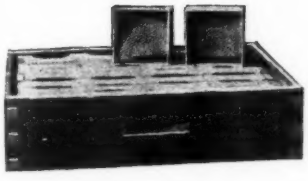
Section Holders



	100 Lots
Scalloped Section Holder	$3.75
Plain for 4¼ x 1½	3.40
Plain for 4 x 5 x 1⅜	4.40
Fences, either size	5.80
Wood Separators	1.35



Comb Honey Supers



Complete but without Sections or Foundation (4¼ x 1⅞ size)

5–10-Frame No. 1 Supers.....$4.00
5– 8-Frame No. 1 Supers..... 3.85

See our catalog for other sizes.

Muth's Ideal Bee Veil

160,000 sold is proof that this veil is what beekeepers want. There are others that look like this veil but there is only one Muth Ideal Bee Veil. **90c each.**

Our Unconditional Guarantee

Our supplies are manufactured under the greatest labor saving system. We sell direct to beekeepers and associations—you save the difference. If our supplies are not equal to the best that you can buy, ship them back and we will pay the freight both ways. You are the judge.

Fred W. Muth

President

The Fred W. Muth Co.

"The House of Personal Service"

Pearl and Walnut Sts. - - - - - - - - - Cincinnati, Ohio

IN THIS ISSUE

APRIL, 1925

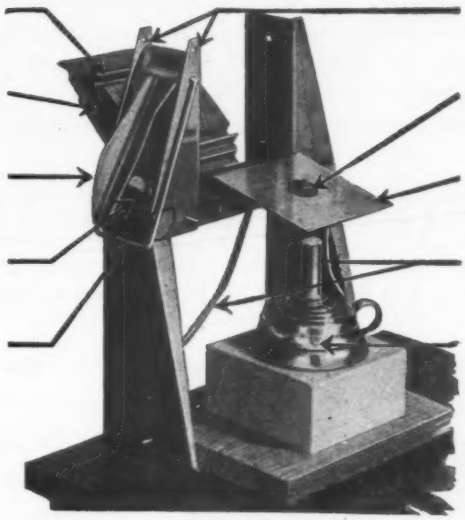
T-SHAPED FORM BLOCK
The sharp edge of hot plate slides under T-tin when cutting off foundations.

SLIDE SPRING ON FORM BLOCK
Holds section securely on the block while it is being reversed.

HAND LEVER
Which quickly fastens dovetails of section.

THUMB ADJUSTING NUT
Permits lever post to be moved backward and forward for sections of different sizes.

TRUSS WIRE
May be swung over opposite post when fastening dovetails if desired.



ADJUSTABLE LEVER
These holes in frame permit raising for use with taller sections.

HOT PLATE NUT
Permits hot plate to be tilted at just the right angle

HOT PLATE
Melts edges of foundation, then cuts large piece off to make smaller bottom starter.

WIRES SUPPORTING HOT PLATE
Permits it to move to and from the form block.

ALCOHOL LAMP
Hot plate tilts over lamp when not in use, permitting surplus wax to run off back edge.

SIMPLE, SURE, SPEEDY

You cannot afford to be without the **Woodman** combined section press and foundation fastener. It folds comb honey sections and fastens top and bottom foundation starters at one handling at a great saving in time and money.

Fastest Fixer Made. The WOODMAN Fixer is a very fast machine. With a little experience you can easily handle 100 to 200 sections an hour, setting both top and bottom starters. One of our men's regular gait is to fold and put top starters into 500 sections in 90 minutes. This includes cutting of foundation and packing away the sections. With the machine, a slow and disagreeable job becomes very easy and simple.

Delivers Right Side Up. The WOODMAN Section Fixer is the only machine from which the section comes away right side up, with the large starter hanging down. They do not become loosened in reversing as with other machines.

More Money for Your Honey. Because with top and bottom starters you are assured of straight combs well attached to all four sides—a requirement to grade fancy. The hot plate fastens both top and bottom starters securely.

Easy to Use. Since you are always handling large pieces of foundation, the WOODMAN Fixer is much more easily used than any other machine. By ordinary means, only an expert can set the small starter at all, but with the WOODMAN this is accomplished very easily and quickly.

Hundreds Sold. The WOODMAN Fixer is the most successful and popular machine on the market. Every buyer is enthusiastic. Adjusts quickly to handle different size sections. If you have but ten swarms you cannot afford to do without it.

A postal brings full information and price. Our complete catalog of beekeepers' supplies and accessories free for the asking. Write for it.

For sale by all G. B. Lewis Co. and Dadant & Sons agencies. Also sold by many others in this and foreign countries. Price, with lamp, $5.70. Mailing weight 5 pounds. Postage extra.

A. G. WOODMAN COMPANY

SOLE MANUFACTURERS

204 Scribner Ave., N. W., Grand Rapids, Mich.

WOODMAN'S FAMOUS BEE WARE

WOODMAN'S

SECTION FIXER

AMERICAN BEE JOURNAL

Vol. LXV—No. 4 Hamilton, Illinois, April, 1925 Monthly, $1.50 a Year

"It Should Have Been Done But—!"

Simple Ways of Charting Work that Make this Excuse Unnecessary

By Morley Pettit.

DURING the Great War we read in the press reports from day to day of the "morale" of our brave fighting men, or of the lack of it, in the armies of the enemy. This has given us a name for a desirable condition which we have come to call "colony morale". Now it would seem fitting to apply the same term to the beekeeper and his helpers, and speak of Apiary Morale. As workers of the bee colony are kept in working mood by proper conditions so the morale of the human workers is maintained by good management.

Success in beekeeping depends largely on the mental attitude of the beekeeper. He must have faith in his business as a business, and not regard it as a side line, or an experiment, or a stepping-stone. What attracted me most in the teachings of our good Doctor Miller, who has gone from us never to return, was the fact that he resigned both a musical and a medical career, in each of which his prospects were bright, and taught the world that beekeeping, a far more obscure calling then even than now, is one good road to health, happiness and a comfortable income.

The beekeeper, who has made a right start by facing the fact that he has tackled a man's job worthy of his best efforts, must have faith in his locality, or move to a good one. I am coming to think more as the years go by that there is less variation in localities than in the beekeepers who occupy them.

The beekeeper who would succeed must have faith in himself and his methods, and not be turned about by every wind that blows. In order to have this faith he must have within himself the elements which make for success in any line: Good health, diligence, foresight, close observation, careful attention to details, but a sense of proportion. He must have the will power to do the profitable things and to leave undone the unprofitable. He should be willing to take a chance when it is a chance of increased profit, but never when it is a chance of ordinary success

Morley Pettit is such a prominent figure among beekeepers that an introduction to him is out of place. His apiaries at Georgetown, Ontario, of over 700 colonies, are on a strictly business basis and his success highly recommends his methods.

versus failure. The really successful beekeeper knows the "Why?" of the various operations; he understands the principles involved in good beekeeping, and bases all his methods and appliances on these principles, and not on what he "prefers" or someone else "says".

Success in beekeeping requires a willingness to work, to work hard and to work fast. I have personally worked at beekeeping all my life, and have employed quite a number of different men, so that it does not take me very long to decide whether a man will make a successful beekeeper or not. There are so many small duties that the man who is slow or indifferent will while away his time producing less than half the honey that will be produced by one who is quick and alert. Just one rule that has helped me all my life. When nearing the completion of one job, begin to plan how the next one will be done. Every man has his gait, like a horse, and it is next to impossible for him to change it. Occasionally a young man who dreams through his late 'teens and early twenties wakes up, but it is the exception rather than the rule. If a man or woman has the will to develop a beekeeping business and is just naturally slow gaited, the next point I am going to discuss should appeal to him even more than to the active hustler.

Everyone should work out a system of management which will keep the work running like clockwork and all hands alert, even in the most difficult of seasons. This takes very careful planning on the part of the chief, and quick, active, willing loyalty in the helpers. Work well planned and equipment well prepared in advance, coupled with an earnest desire to see things go, on the part of the help, makes a pleasant and profitable summer for all concerned.

At the Pettit Apiaries the plans centre in the little office next to the carpenter shop upstairs in the main building. It is just a small room plainly finished with a good desk and other necessary standard office furniture. There is an electric heater for chilly evenings and a fan for sultry ones, also a steam radiator for use when needed. Around the walls are shelves of books, journals and bulletins, and files for records and letters. The windows face South-east and South-west so as to give me all the sun there is when I am spending daylight time at my desk. On the wall opposite are some college group photographs which I prize very much, and when I lean back to think out some problem my eyes wander to

the faces of my boys, who are boys no longer; some are professors, and some are farmers and some are beekeepers. Some are at the ends of the earth and some lie sleeping beneath the fields of Flanders.

We have seven hundred colonies of bees in a dozen different apiaries which are supposed to be visited every eight to ten days during the active season. Practically all supplies are kept at home to be overhauled, cleaned, sorted, etc., and taken to the different yards on the regular trips, as needed. To simplify the work we have standardized equipment as far as possible without throwing away too much material that is still useful or refusing to adopt changes which are sure to increase profits. In fact we keep an experimental department going all the time.

Transportation is by means of a ton truck, a light truck, and a Dodge touring car. I have not personally driven either of the trucks for some years now, as I find that it pays me best to have this done by reliable help and to always go to the yards in a passenger car. This carries my personal equipment and a great deal of other material, besides extra men, and makes me independent to sometimes oversee the work of more than one crew. With rapid improvement of roads I am arranging the yards in series, either directly on or just off main highways, and a truck load of supplies going out in addition to the passenger car can take care of two or three yards in a day. The driver is of course a beeman as well.

There has been a great deal of boasting on the part of beekeepers about how many colonies one man could manage alone. It is true that efficiency in this line should be cultivated to the fullest extent. At the same time I feel that a season spent in apiary work is just that many months measured off my life. If I have spent those months toiling harder and longer hours than my strength warrants, they have been wasted, but if I can profitably employ help and equipment so as to make the work pleasant, how much better it is! On the other hand, I think it pays to employ help enough so I can attend to details for which many producers say they have not time. I endeavor to strike the happy medium between management which is too intensive and that which extends so far as to become unprofitable.

Besides having the best of equipment and plenty of it, we study constantly for the best and simplest of methods. These also are standardized as far as possible and are based on sound principles of bee-behaviour, so far as they have been determined. Not only is each colony given individual attention, but varying conditions of each location are noted on the different trips. For this purpose we have a set of records which, tho exceedingly simple, enable me to plan intelligently for the next trip. The individual hive records pertain almost entirely to the queen. Perhaps detailed colony records as to strength, brood and stores are valuable for experimental purposes, but I do not feel that I have time for them. At each visit we do what seems best for the colony. If the colony does not do well I blame the queen and treat her accordingly. So I keep pretty close watch on the queens. For this purpose I have the hives all numbered and after each visit, carry home with me the numbers of the colonies which have had or need various things done to their queen condition. Coupling this record with the queen-rearing records shows me what further should or can be done to these colonies next trip.

The record of visits to each apiary is kept on a plain 3x5-inch card, which bears a letter representing the name of the yard in question, such as N for the North yard, R for the Riverside yard, and so on. At first the names were local names, such as Speyside, for the four-corners near which the yard was located, but when a yard is moved bodily it usually retains its name, and now the S yard is miles from Speyside, yet the boys find it convenient to still call it by that name. The yard cards are filed in the desk according to the dates on which the next visits are to be made. Each visit to the N yard, for instance, is recorded on the N yard card, with a few words showing what was done and the nature of conditions found: e. g. "May 11, finish clipping, supering". "May 26, unpack and super, all have 1 and many 2 supers". When the record shows a yard well supered and no swarming impulse, and if the weather is backward, the next visit may be delayed, provided nothing else requires attention.

To avoid extra trips we must be sure to take all supplies that may be needed on the regular trip. While at the yard I jot down on a piece of memorandum paper, besides the queen records already mentioned, items of importance to remember when preparing for the next trip, such as the nature of work just completed, special notes on conditions of bees and supers, and supplies needed next day which are being left stored or must be brought. I find this absolutely necessary, and yet sometimes have to drive myself to it, as it is usually a scramble to get through in good time, and it is all so plain then that there seems no danger of forgetting it. But tomorrow it will be different yards and next day more still, until the memory of details becomes scrambled. There is a particular pocket where these memoranda go, and this pocket is emptied into a certain wire basket on the desk, and this basket is overhauled almost every evening to write up the records and notes for future trips. Records go on the yard cards concerned as already indicated. Notes of supplies stored or needed and of temporary queen-conditions are pinned to the yard card with a wire clip.

As the day approaches for the next visit to any one yard, these notes are carefully gone over during the evening hour in the office, and a "List", as I call it, made out ready to hand to the man who is to take the trip. If he is a senior man, he is given full particulars of the work to be done and advised to supplement the list with any equipment he thinks may be needed, then he is responsible. If a junior man going with me, I take the responsibility and make the list very explicit. For example, "List for K. Mon. June 28. Light Ford, water rad., oil motor, tires, 55x60, 24 supers combs, 20 excluders, 1- cloths, smokers, veils, lunches, saw, hammer, nails, hive-tools, drinking water." When he has completed the load he is to hand the list to me, or carry it with him and give it to me at the first opportunity. It is used for recording the yard notes, so that it goes back to the office to be posted up for next trip. All details are there on the one piece of paper.

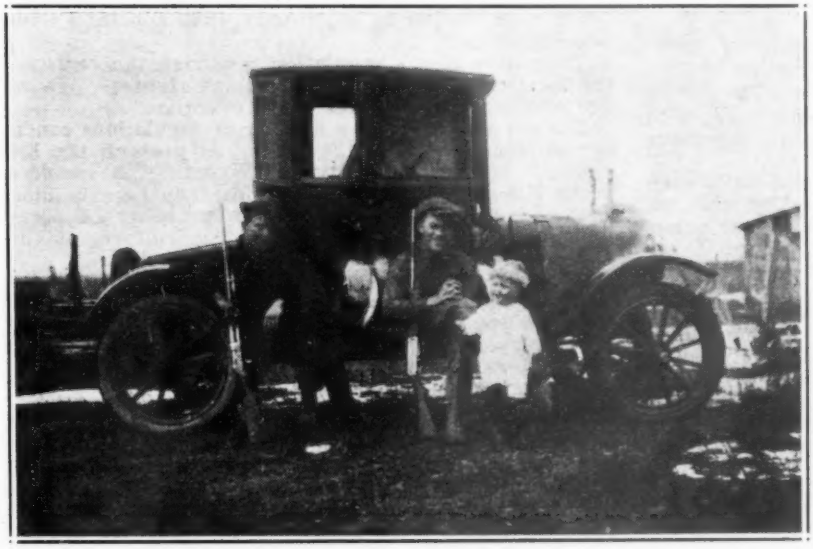
When requeening is going on, the week to week record of colonies is kept in detail and the man going out to a yard is given, on the same sheet as his load-list, a statement by colony number of what colonies are "K. Q." (queens killed last trip), "R. Q." (queens introduced), "Y. B." (young brood introduced as test), and so on. There is also a place prepared on the sheet for him to fill in colony numbers and other details for his report on conditions as he left them. When a colony is OK and requires no further attention, no report on it is required. The point I wish to make is that instead of keeping a record of all colonies, whether it is going to do any good or not, I try to keep a record of certain conditions in which I am interested and the numbers—that is, the names of the colonies falling under these conditions. The records are marked permanently on the hives by a shorthand system which I have been developing and takes very little time. The small letter "q" always means that the colony is queenright, "noq" indicates that the absence of the queen has been discovered unexpectedly, and is used in place of such terms as "q-out" or "kq," which show what became of her. "Keg" was used by Dr. Miller when he destroyed queen-cells having eggs only, but I use "neg" to show that there are no eggs in the hive at all. And so one might go on through the list, bearing in mind that it is only exceptional or special cases which require a mark at all. The ordinary run of colonies are examined, given necessary treatment and passed.

One of the best things about beekeeping is the frequent changes of occupation. This may be opposed to factory efficiency, where speed is required by long repetition of certain simple motions, but it tends to the rounding out of the man or woman engaged in the work to have a complete change every little while. We open up the season with shop work in April. Packages are received about the end of this month, and May is for queen clipping and general building up operations. Colonies are unpacked about the first of June and supering and swarm con-

trol and queen-rearing start the latter part of the month. July is our main honey month and August is for extracting it. These are also requeening months. In September we remove and extract the last of the fall supers and start to pack and feed. October is for feeding and November for finishing up.

I find more advantages in the central-plant system from year to year. Specializing is essential to the highest success. Very few men succeed in practicing law and medicine at the same time. I would not know how to manage without a fairly well equipped office. Others may be able to keep in mind a picture of conditions at all their yards, and carry their plans in their heads, but where so much has to be crowded into a few months, it is risky. Then we have a variety of locations and always changeable seasons. With plans well charted and work well up, we are ready for emergencies. Otherwise, one is liable to see what should have been done after it is too late.

Hello, Young Dadant!



No, this is not Dadant, but we boys with the ducks we bagged.

THE next time you want to go duck hunting, come down to Lane City, Texas, where you can have a real honest to goodness duck hunt and be able to show the proof—convincing evidence that you have been duck hunting. This way of just telling what a good place to hunt you have just been to and not showing anything to prove it don't go.

We live 40 miles from the Gulf of Mexico, on the Colorado River. The river has a raft (a kind of a dam in it) that holds the water up near the top of the banks, and overflows with every slight rise, covering thousands of acres of land. This land is most all timbered and has a lot of small lakes which make it an ideal place for the ducks to rest after feeding on the rice farms on all sides over night.

I do not take much stock in hunting any more, but I have two boys, one 22 and the other 24 years old, that do all the hunting. The oldest one was home for Christmas, so on December 26 he and a young man I had here started out about 5 a. m. to try their luck hunting. This good hunting ground is a hunting reserve and it costs two dollars a day for the privilege of walking yourself down, getting wet and muddy.

About 4 p. m. they returned with all the ducks they wanted to carry, and one squirrel. They gave the squirrel to my little grandson, 2 years old. When we started to make a picture of the hunters and their game, he came running to the end of the porch with his little toy gun in one hand and his squirrel in the other, hollering, "Dady, Dady!" You can see him in front of his dad with his squirrel. "Like father, like son," applies to most boys, especially when it comes to hunting.

Now if you will come down you might be able to get a shot at a bear as well as ducks. We have a few of them yet, and I will have a bee yard near where they range.

Yours for a good hunt,
W. H. Moses.

Arizona Report

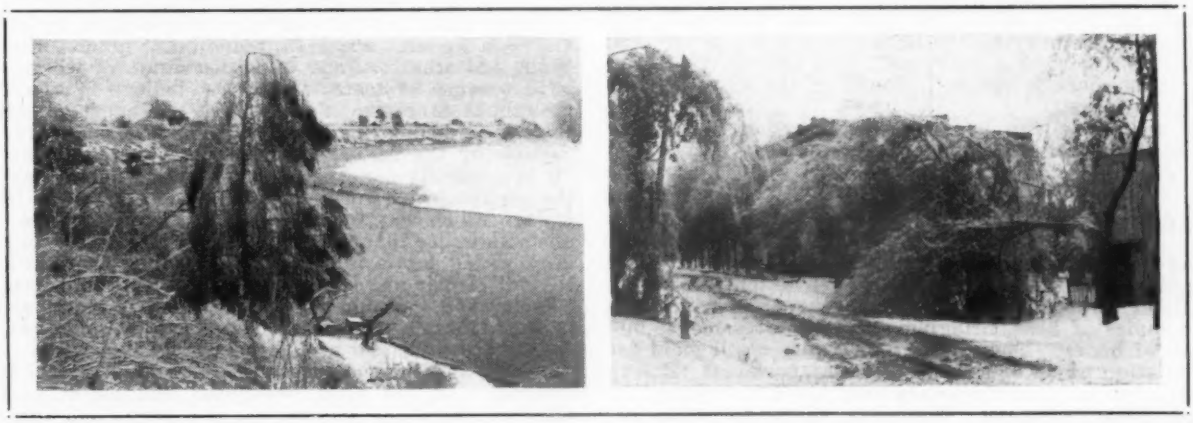
I have just returned from a 400-mile auto trip, including Phoenix, Monmouth, Florence, Globe, Roosevelt Dam, returning by Mesa and Tempe. I found the entire section suffering from drought, the Roosevelt Dam the lowest it has ever been, with about 1½ acre-foot of water for the 300,000 acres of land it supplies.

However, now is the time to get our spring rains. The past two years have been dry, with but little desert bloom or mesquite. Cattle men are losing heavily. Grass in places is starting, but needs rain badly. The past year there was about two-thirds of a crop of honey in the section referred to, mostly alfalfa and cotton. The prospects now are about the same.

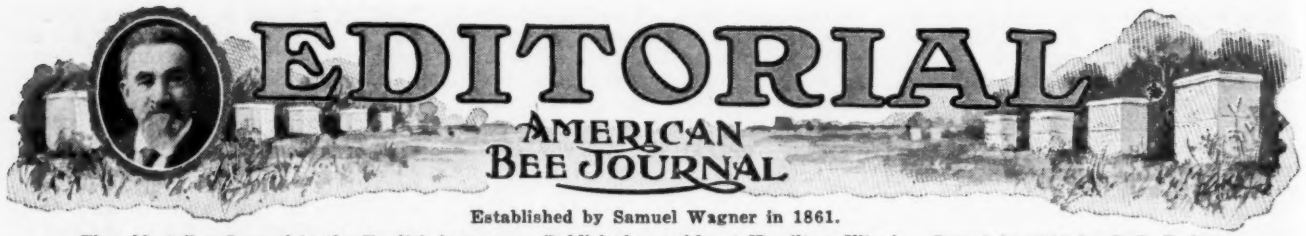
Bees in fair condition, plenty of stores at present. Our state Inspector informs me that on his fall round of the state he only found one hive of foulbrood, to which he applied the fire. So we hope to be free of foulbrood.

With storage water pumps to raise water from the under places the farmers are not worrying, or the beekeepers either, in the irrigated valleys.

B. A. Hadsell, Arizona.



Here is what happened to us in Texas, on December 19, 1924. You folks up North have no corner on snow any more than you have on ducks. This is Wharton, southwest Texas, and the Colorado River. Isn't it beautiful?



Established by Samuel Wagner in 1861.

The oldest Bee Journal in the English language. Published monthly at Hamilton, Illinois. Copyright 1925 by C. P. Dadant.

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The Bee-Louse (Braula Coeca).

Circular 334 of the Department of Agriculture, with the above title, written by Dr. E. F. Phillips, is on our desk.

It appears that the Braula, which is occasionally seen in colonies of bees, in Europe and occasionally, also, on queens imported from Europe into this country, has been found in Carroll County, Maryland, where it has existed for several years. The circular gives quite a description of the louse and interesting comments.

I have quite often seen the Braula on queens from Italy, at their arrival. We always removed them, which was not a difficult job for they are comparatively large. Holding the queen in the fingers, the louse is driven off with a feather or may be picked off with the blade of a penknife. I have removed as many as five from a single queen, which did not appear to suffer from these undesirable riders.

As the Braula coeca is a warm country parasite, it does not propagate much in our climates. In the January, 1925, number of "L'Apicoltore Moderno," published at Turin, a beekeeper enquires for the best method to rid the colonies of this unpleasant parasite. The editor's reply refers him to an article published in the November number of the same magazine, where they advise the beekeepers to keep their colonies strong. Evidently there is but little danger with strong colonies.

Since Italy is a country with climate favorable to the reproduction of this parasite, I sought for information among the Italian writers. Dr. Angelo Dubini, who wrote an extensive work on the honeybee, "L'Ape," in 1881, devotes nearly two pages to the Braula; but does not seem to consider it as of much importance, although he reports that "almost a million" may be found in a single hive. This is probably a very rare occurrence. He states that "in some cases the queen is almost covered with them, so that only her legs may be seen." He gives several more or less practical remedies, one of the best being to transfer the bees into a new hive with strong pine odor, or to pour some essence of turpentine upon the bottom board, which, he says, "puts the bee-lice to flight without damaging either the bees or the brood, and the turpentine soon evaporates." He asserts, also, that the Braula coeca is generally found in old hives containing black combs.

On the whole, the Braula coeca is rather a curiosity than a danger for beekeepers in all northern countries.

Beekeeping Along the Saguenay

According to "L'Abeille" of Quebec, the two counties of Chicoutimi and Lake St. John, through which the Saguenay River flows, have about 150 beekeepers, with some 600 colonies of bees, bringing a harvest of some 35,000 pounds of honey. They think it is a very small yield for a population of 75,000 in 45 different parishes. But to one who has seen the Saguenay only along its course, the amount looks immense. Doubtless, there are many regions where few bees are kept that could be made to yield a sufficient crop for the population living there.

Wyoming Bee Inspection

The State of Wyoming has lately passed a State Apiary Inspection Bill, in connection with insect pest inspection. It has also passed an appropriation of $10,000 for bee inspection. The mattter is in the hands of the State Entomologist who, "upon the petition of not less than three beekeepers residing in any county, shall appoint a County Bee Inspector."

They have also a regulation requiring the registry of the location of one or more colonies of bees. We wonder whether this will ever prove effective.

The act also contains a number of regulations concerning shipping bees into the state. At present, the Entomologist of the University of Wyoming is considered State Entomologist. All enquiries should go to him at Laramie. Copies of the law can probably be secured from the State Commissioner of Agriculture, at Cheyenne. The bill is described as H. B. No. 161.

This information is given us by O. Hamm, of Sheridan, Wyoming, an officer in the State Association which, although small in numbers, is a giant in action. They give everyone something to do and charge five dollars annual dues besides. This new legislation is the work of their Legislative Committee.

Anatomy and Physiology of the Honeybee

This is the latest and by all means the best and most thorough study of the anatomy of the honeybee that we know of to date. The author, R. E. Snodgrass, has taken the best from all sources and has added his own experience. It is much more complete than his own work published six years previously upon the same subject, and contains twice as many pages. The former work was published by the Bureau of Entomology at Washington. This is an independent publication by the McGraw-Hill Book Co.

As a book, it is mechanically fine, easy to read and well printed. In language it is scientific, but not burdensomely so. Some of the terms are beyond the understanding of the average reader, but many of the explanations are perfectly understandable by anyone with a common school education.

Some of the cuts are identical with those of the former edition, but a number are much more detailed and more easily understood. They are excellent, clear and simple. So are the explanations of how the different organs are used.

Interesting points are especially the following:

Pages 32-9, experiments upon the senses, by McAdoo and Von Frisch. Page 43, mandibular glands, Lineburg, Wolff and others. Page 61, a discussion of whether bees have a sense of taste, which we believe is superfluous, though their sense of taste may differ from ours, as their sense of hearing surely differs. Pages 166-72, a discussion of the salivary glands, in which he states that "it is generally conceded that the pharyngeal glands are the organs which form the brood food or 'royal jelly,' a matter which was for a long time disputed, some anatomists claiming that the royal jelly which is fed to all the very young larvæ is a stomach produce or regurgitated chyle." Instincts, pages 226-234. Vision and eyes, 245. Mating, 258. Parthenogenesis, which is again attacked in some French magazines by self-styled scientists, is of course accepted and accounted for by this work.

All in all, the book is worth a great deal to both the scientist and the plain beekeeper and ought to find a place in every bee library. It is a very good witness of the progress which is being made by study and experiments.

Can Bees Hear?

Some of our scientists would have us believe that bees cannot hear, because they have failed to find organs in them resembling our ears. But inasmuch as bees are built with capacities and purposes which differ from ours, we cannot expect them to be built like us. Their claws differ from our hands, their eyes are many times more numerous than ours, but immovable in their sockets. why should they not have the power of hearing? They certainly need it.

Some months ago, Mr. M. M. Moore a young beekeeper of Iowa, visiting with us, suggested that the hearing of bees might differ from ours in the number of vibrations which are perceptible to them or to us. He has studied "radio," as have most of our wideawake young people, and he made some suggestions. These I have asked him to explain on paper, and here they are. Mr. Moore does not claim positive knowledge, but he makes a path for suggestions and studies of the question of hearing in bees. Perhaps this editorial will lead to further studies and perhaps some discoveries. I believe this is on the right path to further knowledge. Mr. Moore writes:

Bees Sense High Pitch

"If we approach a hive without jarring it or blowing our breath toward the entrance, we may shout or whistle without the guards noticing it, but if a strange bee approaches or we brush the hive, the same guards may erect their antennae.

This behavior interested me, and about three and a half years ago I connected a regular radio tube (audion tube) with 'A' and 'B' batteries to a simple coil which I could tune with a variable condenser. To this I attached an old telephone receiver, which I changed considerably to make it sensitive to high frequency or rapid vioration. By changing back and forth with the condenser, thus varying the frequency, I was able to get the bees to respond quickly to the higher vibrations. They responded to something which was absolutely not perceptible to the human ear.

"I do not know what frequency it was but somewhere, I thought, between fifty thousand and one million. I would not insinuate that these virgin ladies are radio bugs, but I do know that this method produced vibrations of sufficiently high frequency to interest them. Even with my crude apparatus they might have heard an harmonic of some frequency which I produced. At any rate, I could hear nothing, because I am equipped with an ordinary human skull and inside of it, beyond the ear drum, is a spiral chamber shaped like a small shell, with a membrane partition running down the middle. On one side of this is a fluid-like glycerine and out of the other side extend hairs which connect with the nerves of hearing. Sounds resulting from very rapid vibrations do not travel through this fluid very far before they register a sound in the nerve, but less rapid vibrations do travel further down the spiral before passing through and therefore register a different impulse on the nerve.

"The human ear operates over a band of frequency from 20 to 18,000 vibrations per second. Higher vibrations are beyond our range of hearing.

"I do not know that anyone has found a bee's ears nor a good reason for their antennal equipment, but it seems reasonable to think that so long as Nature provided the bee with an otherwise short-lived anatomy, she may have developed sense hairs which connect with auditory nerves."

Dead Bees a Powerful Fertilizer

Messrs. Tricoire Freres, in the Swiss Bulletin, for February, page 51, call attention to the fact that, in front of every hive of bees, and in the apiary generally, vegetation is exceedingly active. They then recall the fact that the bees, in rearing brood, need a great deal of nitrogenous food, that they consume products containing potash, sodium, lime, phosphoric acid, etc. All these substances may be found in the body of bees.

They also suggest that each colony produces a possible 2,000 bees per day during the months from March till July, or some 300,000 bees, the greater number of which perish in front of the hives or in the bee yard. This means some 60 pounds of bee bodies for each colony. What an immense amount of fertilizer, for an apiary of 25 colonies!

The suggestion is well taken and we remember ourselves, how, on a barren hillside, the grass grew vigorously in front of each colony. Bees make good manure, where there are enough of them buried.

The Homing Instinct

There has been considerable discussion in the European bee magazines concerning the "homing instinct," which is claimed to be a sixth sense, by which the bees could find their home from anywhere.

I have never seen bees get home from an apiary moved 6 or 7 miles away. Did any of you ever see them get back home from any spot, in the neighborhood of which they were not likely ever to have traveled? Whether they have a "homing instinct" or not, they are certainly very careful in recognizing the hive and its location when leaving it for the first time; so much so that if you move it six inches and there are some guiding marks, such as a bunch of grass, a stump, a tree, etc., close at hand, you will notice that the returning bee is somewhat bewildered by the change. There are very few spots within 2 or 3 miles that a field worker would not recognize, after a few days of work, even without the existence of a sixth sense.

Eyesight In Bees

Some people deny the existence of keen eyesight in bees. But if one of these doubters should make a bee angry, he would soon find out that that bee could see him, even when a few steps away. This eyesight is not the exclusive advantage of honeybees. I can remember that, when a little boy, I had thoughtlessly annoyed a nest of hornets. I got stung several times, on the spot, and five minutes later one of those hornets picked me out of a crowd of boys to give me another sting, about 5 rods from the nest. Hornets have good eyes, too.

Think About This

What progress, inventions or improvements would you like to see brought about in bee culture?

The above question is asked by one of the most progressive among the French magazines on bees. We would be glad to see that question answered, even only in suggestions. The most chimerical and most unlikely problems may be solved, since we see what we considered as impossibilities matters of fact at present.

Answers to this question may be sent either to us or to La Gazette Apicole, Montfavet, Vaucluse, France.

That Langstroth Puzzle On Page 120

To my great disappointment, I have not received a single solution of those two lines at the foot of page 120. Are you all too busy solving crossword puzzles to solve this? But I must acknowledge that it is rather hard to read. After reading it out readily when I first decided to publish it, I stumbled over it later and began to wonder, after it was printed, whether I could read it again correctly. Must I give it without any help from any of our readers? I shall wait till May to give the solution.

To Drive Away Ants

The "Revue d'Apiculture," in its February number, recommends green tomato leaves against ants. If one places a few of these leaves in the hive cover where ants congregate they will immediately leave, and stay away.

Huckleberry Honey?

Some purple-colored honey, exhibited at the North Carolina meeting, was said to be harvested from very ripe huckleberries. They say it sells well, but it looks like molasses.

Producing and Handling Honey with Efficiency

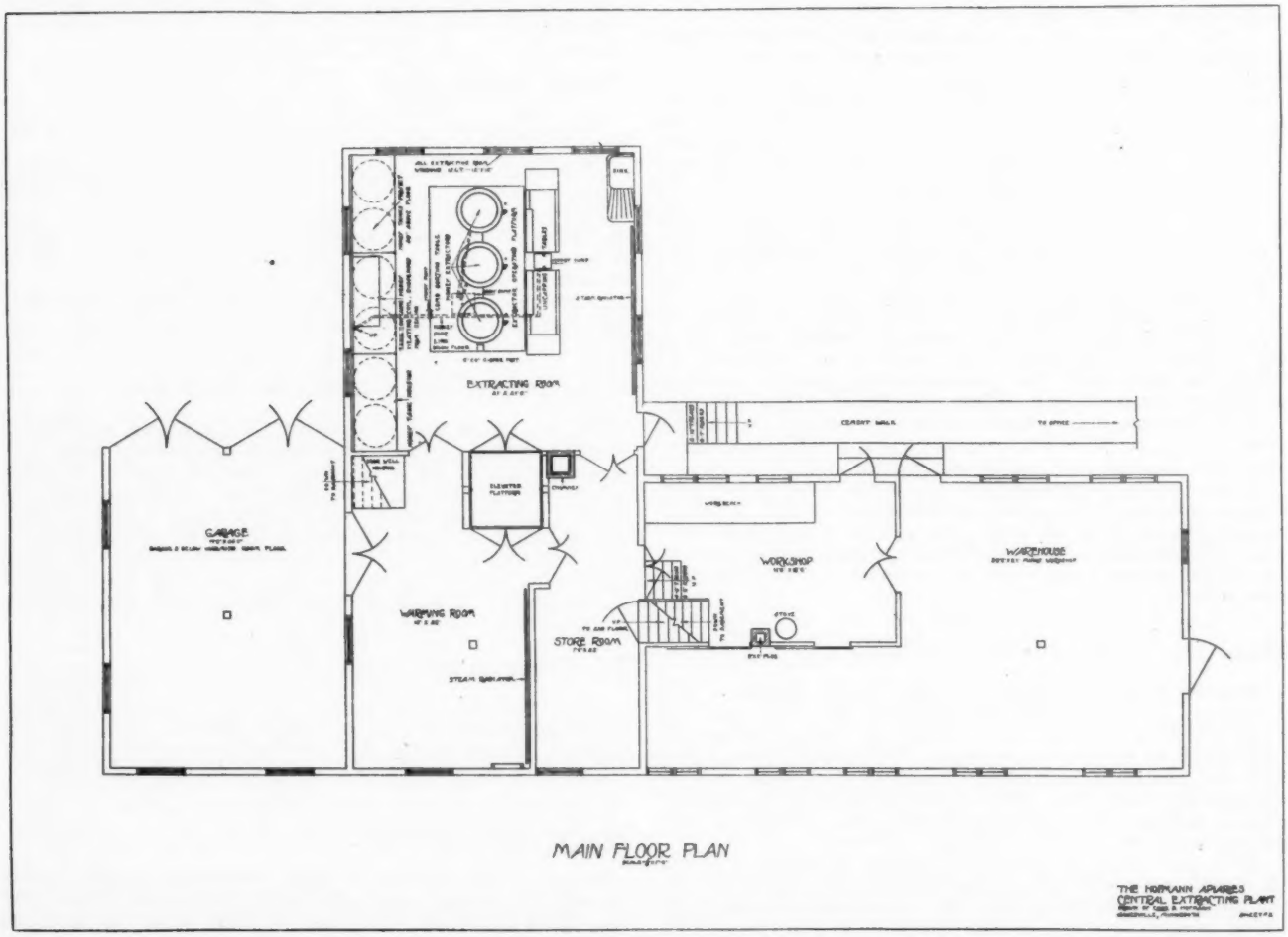
The Second of Two Articles from a Personal Interview with E. L. Hofmann, Janesville, Minn.

By E. W. Atkins.

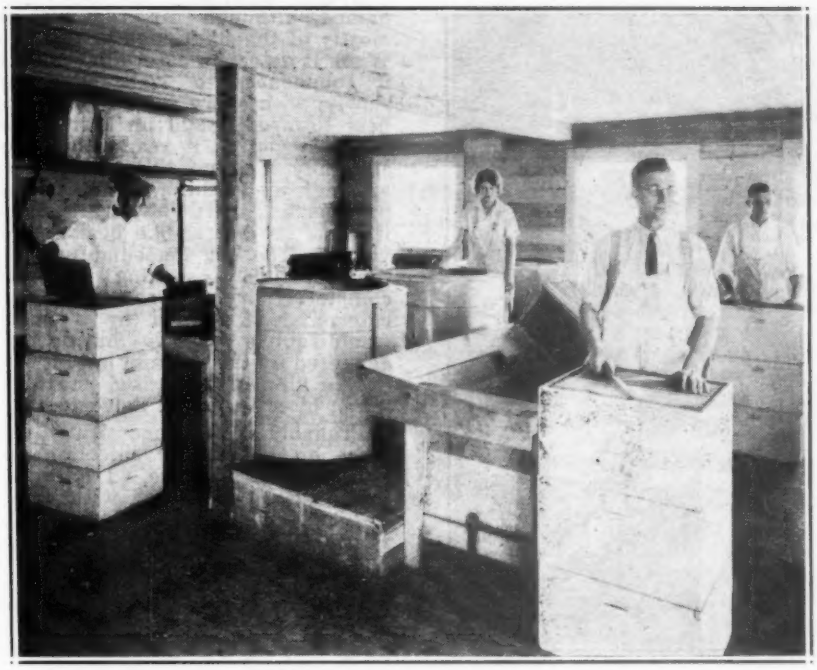
AFTER years of experimenting, Mr. Hofmann adopted the old style factory-made Dadant hive. Under the right conditions it is almost incredible the size that colonies of bees can reach. To emphasize this, Mr. Hofmann, with his large hives, goes one better than anybody I know and runs his colonies from about the time fruit trees come into bloom (the exact time depends on the season and strength of the colonies) in two old style Dadant hive bodies in which the queen has the run of both. He said: "We consider any hive of lesser dimensions too small. After years of experimentation to control swarming with minimum labor we have adopted this large hive to do away with manipulations and the queen excluder during the honey flow." He further explained that the swarming period affords him more leisure time now than during any other period of the season. Another important feature which Mr. Hofmann pointed out in connection with their system is that "one practical beekeeper as directing head can produce the largest crops of honey with inexperienced help." The regular shallow old style Dadant supers are used for the storage of honey above the two large hive-bodies. No queen excluders are used until end of the honey flow. Then the shallow supers are lifted off with one of the Hofmann lifting devices. Next, to insure at all the queens are in the lower story of the big two-story hives, the bees are stampeded down by smoke from a special smoker which entirely covers the top of the hive.

When practically all the bees have passed down, the top story is raised up at the back with a one-man lifter and a queen excluder inserted between the two hive bodies. A bee escape is then placed above the top hive body and shallow supers returned for the bees to work out. By giving the queen the run of two of these large hive bodies Mr. Hofmann is able to use bee escapes to take off the crop stored in the shallow extracting supers, as he claims that less than 2% of the queens go into them. In fact, he added, "Practically all of our surplus honey is produced in white combs, and these combs need no attention after the honey is extracted to protect them from the ravages of wax forms." This, however, is a point that the amateur should watch, because if any combs have had brood reared in them the wax worms may get started and then damage many of the white combs.

The objection I raised to Mr. Hofmann about his system was the necessity of having to handle such large hives when putting on queen excluders and when taking off these large hive bodies, in many cases filled with honey. He had a good comeback, and to show that he and his men did not consider this objectional they brought forward an iron lifting device which, when placed over a hive body, gives ample leverage to break the propolis and allow one man with ease to raise the back of top hive body high enough to insert a queen excluder. A similar device, only with handles at each end, is used to carry Dadant hive bodies when filled with honey. This lifter with two of his assistants carry-



Main floor plan of the honey house. Everything arranged for speed.

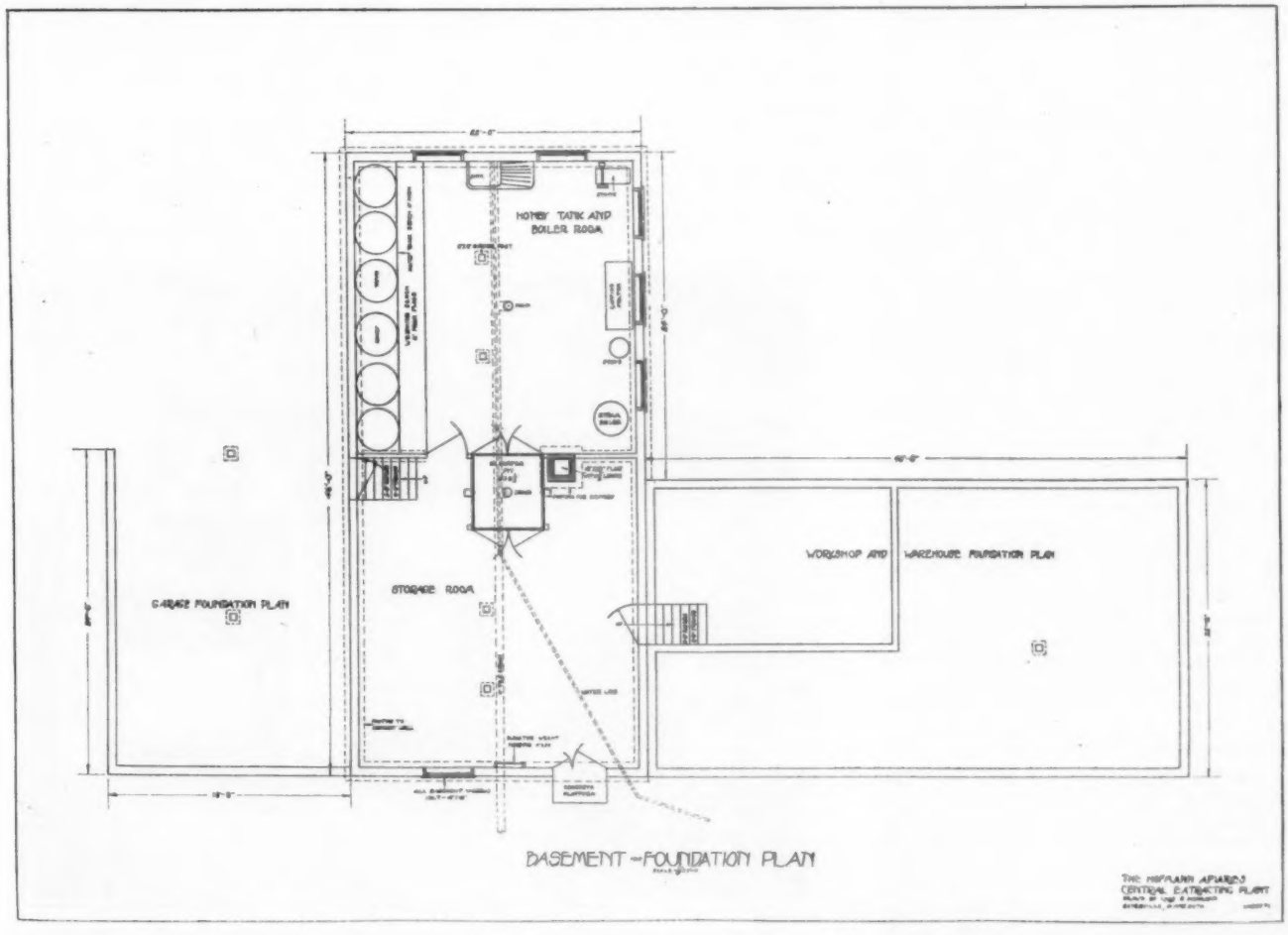


Ready for action. Good equipment, conveniently arranged, and cleanliness are the features of the Hofmann extracting room.

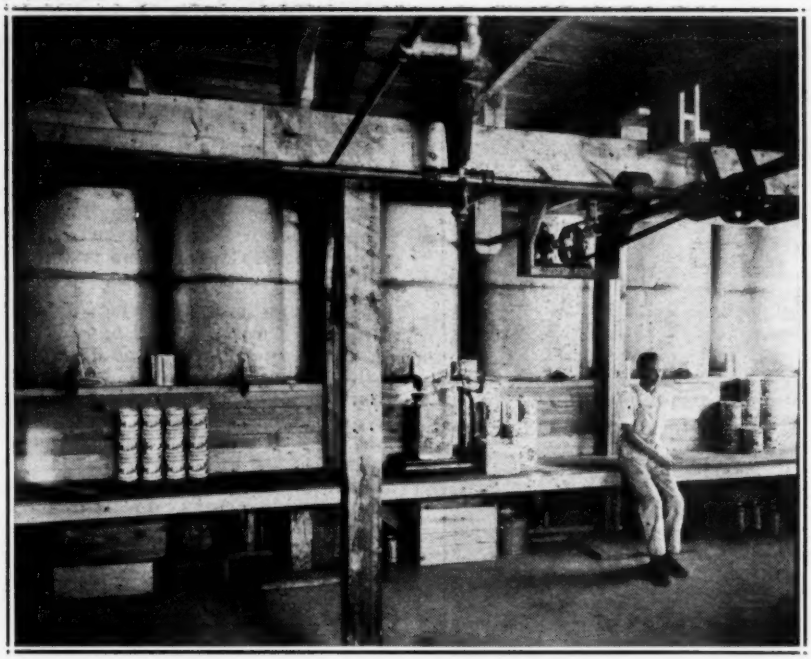
ing two Dadant hive bodies filled with honey was shown in last issue. The lower body is gripped at each end by an iron bar which doesn't show in the picture. These bars run from one handle bar to the other and hive fits between the lifter. Bars bind tightly against the ends of the body when the handles are raised.

A 1½-ton truck and a 1-ton speed truck are used in this business. The supers of honey are hauled home in these trucks and run into the garage, where they are unloaded onto hand trucks at a platform which is level with the floor of the motor trucks. From the platform they are wheeled into the heating room, and from there you can trace the course of the crop by referring to the plans and pictures of the honey house with this article. The plans were drawn by young Hofmann, who is following in his father's footsteps.

As clean as a high class dairy, the extracting room is laid out for speed. Everybody in the room works in white clothes. There is always a good supply of hot water on tap. Note in the picture, the arrangement of the equipment. Three special four-frame power extractors with baskets, each holding two Dadant super combs, do their part in turning out 12,000 pounds of nature's best sweet per 10-hour day. The chain attachment at the side of the extractors is for reversing the other machines without having to walk from one to the other to do that work. This is just another example of time saving which is everywhere foremost in E. L. Hofmann's system to keep down the cost of production. Mr. Hofmann's daughter, who is just through high school, is chief assistant in charge of the extractors. As the honey comes from the extractors it is heated to 150° F.



Basement plan of honey house, equipped to serve the floor above.



The Hofmann honey packing room. This is below the extracting room and cleanliness and convenience are again the features.

by being pumped through a series of coils in the hot water tank shown at the upper left side of the extracting room picture. These tanks are located in the canning and packing room immediately below the extracting room. The tanks extend several feet through the floor of the extracting room, where they are boxed in and in addition each has a tight-fitting cover. These large tanks will retain their heat for several days, and all the foreign matter rises to the top, where it is easily skimmed off in the extracting room.

The packing room is well heated, as are all other parts of the building, by steam from the steam boiler shown in the picture. Mr. Hofmann said: "Honey extracted early in August was still perfectly liquid and showed no signs of foam or air bubbles the latter part of December."

The honey is put up in 5- and 10-pound pails and 30- and 60-pound cans. Every container bears a neat, attractive label, and his trade has long learned to demand Hofmann's honey. The result is that he has no trouble in selling his largest crops through retail stores and some direct to the consumer. The latter buy at strictly the best retail prices.

Many men in America and other countries are demonstrating that bee-keeping is a real business, and E. L. Hofmann is one of them.

The Assassin Bug

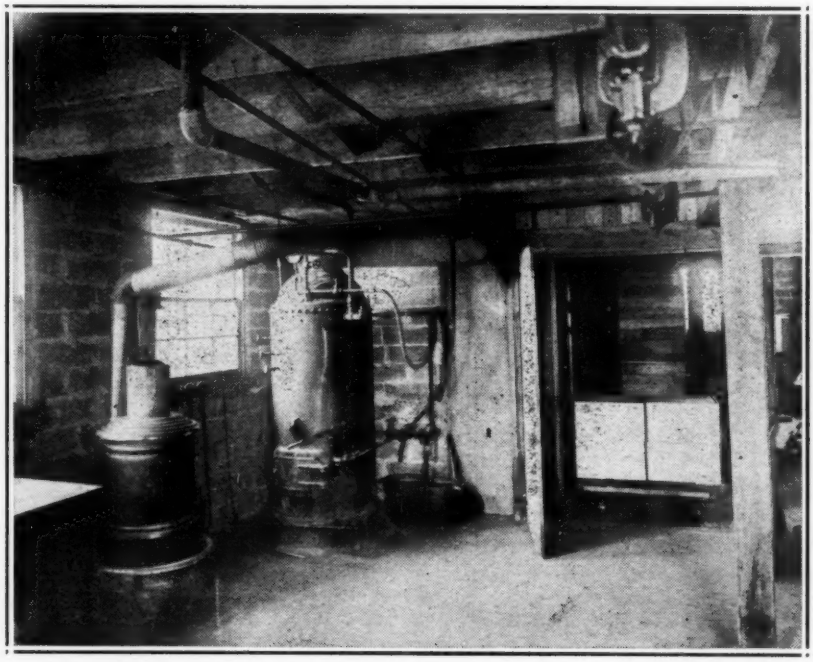
In the January number of the American Bee Journal is an illustrated article headed "A Bee Enemy of New South Wales," describing the so-called assassin bug. We have this identical, or at least almost identical, insect right here with us in the southern part of the United States. It is probably the largest of the true bugs in this country, about 1½ inches long, of a silver gray color, with an odd looking, serrated crest on top of its thorax and the bright steel blue wings folded tightly in the hollow of the depressed back. The little head, raised high on a long neck carries a wicked looking beak, three-eighths of an inch long, curved downwards. The insect is not very active; it may be seen mostly sitting still or moving very slowly on the leaves or stalks of weeds. When a person comes near, it merely retires behind a leaf or stalk, and it takes some teasing before it takes a notion to fly swiftly away.

The assassin bug is very rightly named, although it reminds one mostly of the stage kind of assassins. When it detects a caterpillar close by it commences to walk stiffly and slowly, with every aspect of stealthiness toward it, and on arriving before his victim, it rears slowly and stealthily high up till its front legs are high up in the air, then with an unexpected swift downward stroke it soaks its dagger-like beak into its victim. The bug immediately begins the slow job of sucking its victim completely dry. It seems odd, this caterpillar, if pricked by a needle, would squirm violently (but on being daggered by the assassin bug, it gives only a kind of surprised start, followed by a few weak movements.

Probably Nature mercifully combines an anaesthetic injection with the murderous stroke. I have seen this assassin on a hive with a dead bee impaled in its beak, but this happened so very seldom that I would not consider him a real enemy of bees. This bug may possibly attack bees, while they are visiting flowers, although I have never observed anything like it, but the activity of a hive entrance certainly has no attraction for it. The assassin bug prefers inactive, soft-skinned, fat and juicy insects for its prey, and it is certainly not discriminating in its tastes, as its frequent attacks upon its cousins, the squash bugs, while these are yet in the tender stage before the final moultings, proves. Many true bugs diffuse when handled or crushed, a more or less horrible stench; but for emitting the vilest stench, the squash bug easily takes the cake.

I use the term "true bugs" to avoid confusion with an entirely different class of insects, which are also popularly called bugs, but whose proper name is beetles.

Chas. Hofmaster, Oklahoma.



There is nothing like plenty of heat and hot water in a honey house. Here is E. L. Hofmann's way of getting honey.

Spring Work in the Apiary

By C. P. Dadant.

WHEN the bees begin to fly regularly, it is time to examine the hives, not before, unless they are short of food, and this should not happen.

The important thing, to my mind, for all beekeepers, is to make sure of a good laying queen. Quite a few queens fail during the winter, especially if they are old. Of course, we should not keep queens over two years old; yet, I must say that I cannot find the courage to kill a prolific queen that has done good work unless I notice that she is beginning to fail, and I would never change a queen that is less than two years old, unless she does not lay her eggs in compact form. Then she should be changed immediately. But to put a new queen in the place of a good one is to change a sure thing into a possibility, for we never know what a new queen will do.

If we have poor queens, in early spring, in our northern states, about the only thing we can do is to order some from the South. That is a recourse we did not have in the old days, for the Southern beekeepers did not then realize how much business they could do with us, if they only had good queens early.

To change a queen, wait till the new one is at hand. To make a colony queenless beforehand is only seeking trouble.

A queenless colony is usually worthless. Yet, if it is still strong in bees, it is better to give it a queen than to unite it with another. When you unite it, you lose some bees which, being old, do not really get used to the new spot. Then a number of those old bees are killed by the colony to which they are united. If you give the colony a queen, with a few young bees shaken in from a strong colony, to take care of the brood, you can usually make as good a colony, by the middle of June, as a natural swarm would be.

This fussing with queenless colonies will not do at an outapiary, where you cannot afford to watch the hives closely. You can do many things at the home apiary that you cannot do at any outyard.

Food is an important thing, in spring, for the bees will not breed as much as they ought to, if they are short. Although I believe the "food chamber" is a little overdone in many apiaries, it is surely better than shortage. Many people think that as soon as there are some blossoms out, the bees can make a living. Nothing is more deceiving than relying entirely upon possibilities. I remember a beginner who had asked my advice about buying some bees, from a farmer at some distance. When he brought them home, shortly after fruit bloom, we examined them together, and I called his attention to the fact that they were short of honey and would have to be fed, if he wanted them to reach the clover crop in thrifty numbers. He looked at me with a frown. "I expect bees to feed me, not me to feed them," he said. He finally agreed to give them a little sugar syrup, but he did it reluctantly and I could see that he was already disgusted with beekeeping.

Let us not be discouraged, if we have to feed the bees. They must have plenty and will repay it fully, if the season is at all good. I have often given colonies combs of honey, a few days before the opening of the clover crop, when the rain and cool weather were causing a delay in the expectations, and these bees, instead of using the honey in those combs, added to them, because the crop opened unexpectedly. We may be sure that they never waste the food. After all, it is their surplus that we must expect to take and nothing else.

Clipping the queens is a good practice. Dr. Miller did it regularly, for he was working for comb honey and could always expect a number of natural swarms. We never practiced it on a very large scale, because we use methods which prevent swarming. The English seem to be undecided on clipping, for there is occasionally, in their bee magazines, some discussions of whether clipping is injurious to the queen. If they practiced it as much as it is done here, there would not be any doubt in their minds about it. Clipping is not injurious and helps to find the queen, for a clipped queen is much more readily noticed than an unclipped one. It is almost equal to painting her thorax, which a number of Swiss and German beekeepers practice.

Spring is the proper time to transfer colonies from old, partly worn hives, into new ones. Old hives may be made to last a long time, if they are given a coat of paint occasionally, but the paint must be applied especially on the joints of the body with the bottom board, for that is where the hive rots.

Transferring bees from crooked combs into the frames so as to secure straight combs everywhere, is more proper now than at any other time, because the combs have the least amount of honey in them that it is possible to find. Removing drone combs and replacing them with worker combs used to be a very regular work with us at this season, before the use of comb foundation in full sheets became general. It is still advisable to examine the combs for drone cells, as there may be some undesirable, ill-shaped combs, right where the most of the breeding should take place. Drones are wanted only in 2 or 3 of our very best colonies.

Transferring bees from box hives or from "gums" is also to be done at this time. It is no longer a yearly job, as it used to be when most farmers kept their bees in boxes. But occasionally a beekeeper has found the swarm to get ahead of his provisions and has not been able to supply a sufficient number of movable-frame hives and finds himself with bees in soap boxes, kegs, etc. This is the best time to transfer them, say during fruit bloom. There is but little honey in the combs and the work is comparatively light.

Since the advent of comb foundation, people do not value good worker comb as they should. It is still advisable to save every piece of such comb as is not crooked or too old, for the use of it saves much work and expense to the bees. But we must make sure that it is healthy and does not contain any disease. As a rule, the beekeeper knows when he has foulbrood. He needs to treat it at the first opportunity, when there is a flow of honey, so as to avoid any robbing. Robbing would spread it so that it might invade the entire apiary. The treatment of combs with the Hutzelman solution appears to be successful, if we do it right. Indeed we must do things right if we find any foulbrood, for we can spread it irreparably if we are not careful. I will never forget the visit I paid to a Colorado beekeeper, some 20 years ago, when I had not yet seen foulbrood anywhere and was desirous of seeing it. When I called on him, he had 2 or 3 empty hives in his apiary, chalk-marked "foul." I asked him whether he could show me any foulbrood. Of course he could, for, said he: "When a man has foulbrood once, he never can expect to get rid of it." Then he took me into his honey house, and there, in a pile of old combs, gathered in a corner, he picked up several, showing plainly the slimy, ropy substance which all know who have seen it once, and which I had never seen before. Of course he could not get rid of foulbrood, with that kind of management, neither could I, if I treated it, or rather, ignored it, in that way.

Let us remember what James Heddon once said: "Our bee business is a business of details." Nothing could be truer, and it is the details which make success or failure as we attend to them or neglect them. The bee owner who does not pay attention to details might as well quit keeping bees, for he can never succeed.

At this time, more than at any other time, remember the Oettl motto, quoted by Langstroth and still retained by us on the last page of "The Honeybee":

"Keep your colonies strong. If you cannot succeed in doing this, the more money you invest in bees, the heavier will be your losses; while, if your colonies are strong, you will show that you are a bee-master as well as a beekeeper, and may safely calculate on generous returns from your industrious subjects."

German Beekeeper Wants Work

We had a letter from Mr. Fritz Nutt, Trissou, Furst, Liechtenstein, Switzerland, who is a beekeeper of some experience in his own country and is trying to secure a position in the United States with a big beekeeper.

Mr. Nutt gives his recommendations, etc., in his letter to us. Anyone interested should write directly to him for further particulars.

On the Granulation of Honey

By Mr. Alin Caillas, Agricultural Engineer.

THE true causes of the crystallization of honey are still little known. We know that crystallization obeys, or rather is influenced by certain outside circumstances, but no definite law has yet been found.

I am going to try in the course of this article to state the causes of the crystallization of honey and to show plainly that, as every other crystallization, it obeys some precise and definite laws.

In order to simplify the question, we may consider honey as a solution of various sugars in water. I shall briefly remind my reader that honey contains about 75 per cent in weight of sugars, glucose, levulose, and saccharose, and only 25 per cent of water. It is therefore an oversaturated solution. The sugars just named possess a solubility of their own, but we can admit for all practical purposes that in order to dissolve them it is necessary to take equal parts of them and water by weight. This means that in order to dissolve completely 75 grams of the sugars contained in 100 grams of honey, at a temperature of 59° F., 75 grams of water would be necessary. Now, we have just seen that we find only 25 grams of water instead of 75—that is, three times less.

This fact is remarkable in itself. If honey contained equal weights of water and sugar it would be so fluid that it would not remain in the cells. Moreover, it would ferment much too easily and would soon turn completely putrid. Nature has therefore been doubly prudent in sparing honey, an absolutely perfect product, those two drawbacks.

If, on the other hand, honey was immediately submitted to the ordinary laws of crystallization it would coagulate into a compact mass in the combs as soon as concentrated up to the crystallizing point.

The over-saturated solution of which I was speaking generally yields up its excess of dissolved matter when the unstable balance which prevails in the solution happens to be destroyed.

The above solution might be exactly compared to an over-saturated solution of sodium sulfate. Let us consider the conditions to be realized in order that an over-saturated solution of sodium sulphate may crystallize. In order to obtain the same result in the case of honey we shall have to place ourselves in an identical situation:

1. The temperature must be low enough.
2. The surrounding atmosphere must be as dry as possible.
3. Motion—that is, the impact of the molecules against one another — makes crystallization much easier.
4. Last, but not least, the presence of a crystal of the salt or the substance contained in the over-saturated solution is absolutely necessary.

Here are clearly set down the various conditions required for obtaining a good crystallization, and from analogy a good granulation of an over-saturated solution. Those conditions are exactly the same for obtaining a good granulation of honey. I must add, however that I am here speaking only of theoretical crystallization, for honey, being a complex matter, other factors may sometimes stop granulation or make it slower.

This being understood, here are the necessary conditions to obtain a good granulation of honey:

1. Low temperature.
2. Dry and wholesome storing place.
3. Stirring.
4. Addition of already candied honey to fluid honey.

I have already stated that the above conditions are theoretical, as in practice things are not at all so simple.

It must not be forgotten that honey is a mixture of complex matters which all offer more or less resistance to granulation. Not all sugars crystallize as easily as minerals. Moreover, the gums and dextrines contained in honey are an actual obstacle to quick granulation. In some cases granulation is made nearly impossible; above all when the proportion of dextrine is exaggerated, as in the particular case of honeydew.

The analysis of numerous samples of honey has enabled me to observe that there is in fact a relation between the chemical composition of honey and the ease with which it crystallizes.

Honeys may be placed in the following order:

1. Honeys containing a high proportion of saccharose (more than 6%).
2. Honeys of normal composition (from 2 to 5% of saccharose).
3. Honeys containing from 2 to 5% of dextrine.
4. Honeydews (5 to 12% of dextrine).

The perusal of this table allows us to remark two things:

(a) Saccharose, a sugar that crystallizes easily, hastens by its presence the granulation of honey.

(b) On the contrary dextrine, that is present in such abundance in honeydew, slows down crystallization and even sometimes completely prevents it.

In the following table I give a few indications about the composition and granulating speed of some honeys:

Kind of Honey—	Composition—% Water	Saccharose	Dextrine	Granulating speed
Rape	22.5	8	0.12	0.5
Clover (Iowa)	24.2	6.8	0.15	1
Heather	24.7	5	1.3	1.5
Sage, thyme, lavender	24.6	4.7	1.5	2
Buckwheat	25.0	4.3	2	3
Locust	25.3	4	2.7	6
Basswood	25.5	3.6	5	7
Fir honeydew	26.3	3.2	10.8	--
Var. honeydews (avg)	26.9	3	11	--

Observations: The figures in the fifth column represent the time taken for granulation and correspond approximately to months; 0.5, half month; 2, two months.

We now know the various causes which bear upon the granulation of honey. I am going to deduce therefrom a number of facts which in practice will be very useful to the beekeeper.

Beekeepers may be ranked in two classes:

1. Those who, in order to satisfy the wants of their customers, sell honey in a fluid or liquid state.
2. Those who, for the same reason, want to sell it in a granulated or candied state.

I am now going to examine successively the methods to be used in order to obtain these two kinds of honey.

Preparation of Liquid Honey.

We must apply in this preparation a process allowing us to preserve freshly extracted honey as long as possible in the state of over-saturation in which we find it in the hive.

To this end it will only be necessary to do exactly the contrary of what has been said to promote granulation. That is to say:

1. Keeping honey at a regular and relatively high temperature.
2. In an atmosphere not altogether damp, but much less dry than when we want the honey to granulate.
3. Stirring as little as possible.
4. Avoiding by all means all contact with granulated honey.

The process which enables the packer to get together nearly all the above conditions is **pasteurization.** It consists in heating honey to a temperature of 176° or even 212° F. and allowing it to cool very slowly. Heating offers, however, some drawbacks, for if it is not done carefully we run the risk of destroying the diastases and vitamines contained in honey.

If we take care to keep honey, thus prepared, in air-tight bottles in order to avoid all contact with the outside atmosphere, we can very easily keep bottled honey liquid for nearly two years, which is quite enough in practice. It must be added that it will be better to have our honey analyzed, and not to try and heat any but honeys relatively poor in saccharose and rich in dextrine, The result sought for is reached much more easily and almost without risk; but every honey does not come under those conditions. Therefore, if the honey we wish to preserve fluid crystallizes too easily it is sufficient to mix with it a determined proportion of honey possessing the opposite tendency. We thus get an average product which will remain liquid, after heating, for a maximum amount of time.

Preparation of Granulated Honey.

The conditions to be realized are exactly those pointed out at the beginning of this article.

From what we already know, we see that all honeys rich in dextrine must be rejected. It is therefore useless to try and make honeydew granulate. We shall then preferably

seek honeys rich in saccharose, and after mixing them with some honey of the same origin already granulated we shall obtain complete granulation in a few days.

Here the same remedy may be applied if our honey is obviously too poor in saccharose and too rich in dextrine. A proper mixture, a rational addition of a pure honey presenting the opposite characters, will produce the desired effect. The mixing will have the very good effect of stirring up the whole, to distribute the crystals regularly, and to produce a finely and homogeneously granulated honey.

Beekeepers now fully know the intimate working of granulation,—in fact, a true physical change. They know what conditions must be realized to get what they want.

ALIN CAILLAS.

The author would be especially grateful to his American brother beekeepers who would be kind enough to send him samples of their honey in order to allow him to pursue his studies on the composition and food-value of the different honeys. He thanks them in advance. His address is:

7 Bis rue aux Ligneaux,
Orleans, France.

British Columbia Exhibit

By J. W. Winson.

AT the Provincial Exhibition of British Columbia, held at New Westminster September 8 to 13, 1924, the B. C. Honey Producers' Association succeeded in staging a honey exhibit greater than anything of its kind in the Dominion of Canada, and in the opinion of those competent to judge, finer than any other fair display on the Pacific Coast.

According to George W. York, of Spokane, who was one of the seven judges, the attractiveness of the display has not been exceeded by the Interstate Fairs in many years.

The Royal Agricultural and Horticultural Society which is responsible for the Provincial Exhibition, has been most friendly to the Honey Producers' Association since its formation five years ago.

The honey men were offered what space they desired. They were given a generous prize list and were told to manage the exhibit according to their own requirements.

Then the Hudson's Bay Co., of Canada offered a gold medal for the highest number of points scored in all classes. This stimulated entries. It was felt by the beekeepers that the chief virtue of such an exhibition lay in its publicity; they must set their aims on attracting the consumer to honey. Therefore the chief prizes were given for attractive displays and educational exhibits. Last year the prize list ran near to $400, and this year to reward the enthusiasm of the honey men, the exhibition authorities added another $200 for a new 500-lb. class, the honey to be a "commercial display," practically a shop-window exhibit. A condition was made that unless ten men entered, the money would not be given.

The 300-lb. class was withdrawn, then beemen doubted whether the 150-lb. entries would survive the big contest; but this popular class actually increased. The exhibition committee of the Honey Producers' Association all prepared to put in their quarter-tons, but held back their honey until the last moment to allow the rank and file free room, and in all, fifteen exhibitors were ready to set up the big show—too many for the space allotted. Four of the officers withdrew; one had his honey on the ground, another intending competitor failed to get his glass in time; so ten men staged their big effort, five of them, courageous if diffident, being beekeepers who were novices at exhibition work.

The British Columbia Exhibit.

The result was magnificent. Every kind of container figured in the displays, from 60-lb. cans to individual portions in waxed paper.

Alec Keir, of Kennedy, the winner, had a very dainty design that was made up of a maximum in variety and very good honey. His individual portions of comb honey, eight in a neat cardboard box, were the acme of attractiveness. H. Derrick, of Vancouver, came second with a pyramid of comb and bottled honey revolving on the top, lighted internally with electricity. The light gleaming through the combs and sections made a charming effect. G. Thompson, of Sullivan, and T. Baker, of Bradner, took third and fourth.

Three prominent city merchants were called in to allot fifty points for attractiveness. They gave these to the handsome display of plate glass and mirrors (showing up 12-oz. jars) set up by H. Varty, of White Rock, who lost his lead in honey points and variety.

There were 126 entries in other classes, making a total of 9,980 lbs. of honey in the exhibition, not counting wax, bees, honey for sale, or the honey that was crowded out for lack of space.

Stockmen, poultrymen, horticulturists and visitors all agreed that the honey exhibit was the most remarkable and attractive feature of the great exhibition and a wonderful advertisement for British Columbia and the men who are producing honey in the province.

The exhibition authorities expanded the prize list, making a total of $650 in rewards as well as the gold medal, which went to Mrs. T. L. Baker, of Bradner.

As a result of the splendid publicity gained by the show no exhibitor was compelled to carry his honey home again. There were buyers on hand for more than was on display, and those who refused to sell at wholesale quotations did so because they were certain of better prices in retail.

The attention of big dairy producers was drawn to the honey and negotiations were instituted whereby the honey may be distributed by the same agency that supplies butter to the outlying sections of the Province.

The honey men are promised double the space next year, with all lighting facilities, and a firm of laminated wood manufacturers has offered wall decorations to beautify the building, intending to finish the walls in pearl gray panelling.

The honey producers recognize the great need for advertising the home product to offset the serious inroads made on their market by the honey of Ontario and eastern Canada.

Honor to Newell Edwin France

MANY of our young beekeepers are but little acquainted with the name of N. E. France, who, with his father, Edwin France, was among the most noted beekeepers of America. He is brought to the front again by a well deserved honor bestowed upon him by the State Agricultural College of Wisconsin. Each year, for the past 16 years, the University confers honorary recognition upon five persons whose services to the country are outstanding. We can do no better than quote the mention made in the Grant County News:

"The recognition is not for the man of education alone. The weather-beaten farmer whose entire schooling may have consisted only of two or three winters at the district school, but whose intelligence, perseverance and qualities of leadership have forced him to a place in the front ranks of agriculturists, is given as good chance for recognition as the college man.

"Sixty have been so honored, 57 men and three women. In placing its stamp of approval on the work of such persons, the university is not only recognizing the efforts of some of the worthiest men and women in the commonwealth, but it is adding a deeper meaning and a new dignity to agriculture.

"Selection for honors is carried out largely by a committee of faculty men of the College of Agriculture.

"After the faculty has approved the names, they are recommended to the University Board of Regents, who vote the testimonials of honorary recognition, which are conferred during the annual Farmers' Week in Madison.

"For more than a quarter of a century Newell Edwin France, Platteville, has been a leader among the beekeepers of the state and nation. He was born in 1857, in northern Iowa, in a log house. Bed, table and benches in the house were homemade by putting slabs across pegs driven in bored holes in the logs. In 1862 the family settled in Platteville, making the trip from Iowa in a covered wagon.

"Mr. France attended the Platteville Normal School during three winters, working summers on the farm, grubbing trees, putting in small fruits and enlarging the apiary. He organized the City Fruit Growers' Association, which met every two weeks at his home. In one year his own shipment of blackberries totalled 11,780 quarts. His bees also paid well and he increased the number until he had 650 colonies.

"Mr. France put in 10 years of farm institute work under George McKerrow, speaking on farmers' fruit gardens and beekeeping on the farm. He gave the University of Wisconsin its first colony of bees and was largely responsible for having beekeeping developed as a course at the Wisconsin College of Agriculture.

"For eight years Mr. France has been a judge of bees at the Minneapolis State Fair and has acted in a similar capacity at the Wisconsin State Fair for three years. He served Wisconsin as State Inspector of Apiaries for 25 years. For eight years he was general manager of the National Beekeepers' Association, during which time the membership grew from 375 to 5,000. He resigned to serve Wisconsin beekeepers."

At every beekeepers' meeting that we ever attended, at which Mr. France was present, we could be sure that he would bring some new idea, some "kink," some method of doing the apiary work better and more easily than ever before. He has a number of appliances of his own invention, not patented, which help the beekeeper in his work.

Mr. France lives in Platteville, Wisconsin, where he is secretary of the Masonic orders and in charge of the new Masonic Temple. We will say something about this by and by.

He tells us that the State Department of Entomology and University will have a summer tour in Grant County, the last week in June, and will have an afternoon picnic at his apiary, two miles east of the city.—Editor.

The France home yard, where bees have been kept for over 50 years.

Bibliography—"Practical Beekeeping"

"Practical Beekeeping," by Arthur M. Sturges, B. Sc., is a work of 308 pages (Cassell & Company, London). The book contains 17 plates and 23 engravings.

The author in describing the different varieties of European bees, establishes a difference between the various strains of black bees, describing the German bee, the British bee, the French black and the Dutch bee. His description of the black bees of France does not at all tally with that given lately by our friend Balden-

sperger, for he says that "in addition to their low resistance to disease, they are extremely irritable and not readily subdued by a reasonable amount of smoke."

A special chapter is given to the Italian bee, as the most desirable, and a quotation is made of Phillips' statement that "it is probably true that better Italian stock can now be obtained in America than in Italy."

Breeding for improvement of the races is recommended. The winter problem is treated in 28 pages, with similar conclusions to those attained in the United States. The production of extracted honey is favored. The Demaree system is mentioned approvingly. A few pages are devoted to the production of comb honey. Queen rearing, shipping and introduction occupy 30 pages.

The diseases of bees are given a large space, "acarine disease" having a prominent place, as might be expected from a British work, since the Tarsonemus has been especially damaging in Great Britain.

On the whole, the book is progressive and up-to-date. It must find a place on the shelves of a bee library.

Sugar Production Shows Increase

Sugar production of approximately 1,192,000 short tons from beets and cane grown in the United States this year is indicated in reports received by the department from beets and cane sugar factories. Production from the 1923 crops was 1,043,000 short tons and from the 1922 crops was 97,100 short tons. Production of beet sugar in 1924 is estimated at 1,087,000 short tons, compared with 881,000 short tons a year ago. The cane sugar crop of 1924 is approximately only 105,000 short tons, a low production caused by unfavorable weather and also by the high price of cane syrup. Cane sugar production has steadily declined from the 324,431 short tons of 1921.

Bonding the Queen Breeder —Some Questions

By C. B. Saunders.

1. If a dishonest breeder takes out a bond, is it fair for the honest dealer to pay for his dishonest dealing?

2. What will the League do with a dishonest breeder?

3. Will the League continue to pay for the dealing of dishonest men?

4. Will the League be able to notify members of such men?

5. If there are any dishonest breeders, why not work to get a law passed to expose such men or company?

6. Why make the breeder pay all of the money into the surety department?

7. Why not let the members of the League pay part of the money into the surety department, when they are the ones to receive the protection of this department?

I feel that the members of the American Honey Producer League should pay so much into the funds of the bonding or surety department, since they are to get the benefit of this.

If you had a house insured would the insurance company pay your insurance dues? No; the person who would get the benefit of the insurance would be the one that would pay the dues.

And why require the breeder to pay all the money into the surety department? Why not make those who get the good of it pay for it, or a half of it anyway? All members of the League should pay a few cents into the bonding or surety department if they expect to get payment from this department for the loss of bees or dishonest dealing.

All members should be willing to pay a few cents into this surety department when it is supposed to be a guarantee to the purchasers. And then it would not be making one side do it all, and at the same time it would make the cost of the bond the breeder gives much less than stated at the present time.

I am a breeder of bees and am trying to look at things from both sides of the question. The man who buys the bees from the breeder wants what you advertise and expects to get Italian bees if that is what he has paid for, instead of some other race of bees. And any breeder today in this country I believe, will replace any dead bees or queens that arrive dead, if the party who receives them will return them at once. There have been people who received queens or bees and would write back and say they were dead, instead of sending them back as was stated on the shipping tag or card.

Both parties could be dishonest, and that's why I say members should also pay a few cents into the League's surety department.

Any honest breeder who guarantees his goods and lives up to it does not need to go into the bonding department, for he will have all he can do. There are breeders I know who would like to see the little man crowded out, and are trying to get some way to put him out of business.

My hopes are that the American Honey Producer's League will not let any such idea work into them, to put out the small man and put it into the hands of a few. But make the surety department both for the large and small breeder and also the man who buys. There is plenty of room for all, the large man or little man, as you might call him. Furthermore, the League should also have the manufacturers of bee supplies and supply house to enter into this bonding or surety department, since the beekeeper and the factory, or supply man, have about the same trouble as might be between queen-breeders and beekeepers.

Indiana.

(We do not believe it is intended, either by the managers or by the members of the League, to compel any breeder to furnish bonds. But the giving of a bond by a breeder will be an advertisement, as it will be an evidence of good faith, besides covering to a certain extent possible losses from his failure to keep up with his engagements. I do not anticipate that it will ever be necessary to enforce a damage claim against any bonded dealer, since his bond will insure his fulfilling of his contracts. As a matter of course, any manufacturer or dealer in supplies may furnish bonds in a similar way if it proves necessary. As to the big breeders crushing the little ones, are there any big breeders with enough influence over the field to crush the little ones? I doubt it. There are no millionaires among queen breeders. Our columns are still open for the discussion of this question.—Editor.)

The France family home at Platteville, Wisconsin.

When Fall Problems Become Spring Problems

By K. Hawkins.

"HOW many colonies did you lose last winter?" said Bee Keeper to Keeper Bee one day this spring when they met in town.

"Out of 230 colonies that I put into winter quarters last fall I only lost ten," said Mr. Keeper Bee. "Out of 220 that wintered there are about 50 that are so weak they will have to be coddled."

This is a typical conversation between beekeepers who feel that any colony still alive in spring has wintered. No colony has really wintered unless it has come through to spring strong enough in bees to take its place with any other colony in the yard for rapid building up. A weak colony in spring, for the most part, isn't even worth the time and trouble of a busy, efficient beekeeper.

Spring management seeks to remedy mistakes the beekeeper made the previous fall. It consists of a few very simple rules for building up colonies in spring to the peak of field strength just as the main honey flow starts. It is so easy to manage bees in spring by proper care the previous fall that it is surprising this form of management is not more quickly adopted by American beekeepers.

Probably no other industry would long survive an average annual loss of 10 to 15 per cent each winter. Certainly no farmer could survive if he lost 10 per cent of his dairy cows every winter from careless inattention. In any good locality, with reasonable management bees can be made to pay as much per colony as the average good dairy cow. Perhaps one of the reasons why the keeping of bees is so often snickered at is because careless beekeeping makes some look down upon the industry.

Out of 600 beekeepers who were asked what their principal beekeeping problem was, most replied, "Swarm control." Spring management and swarm control are so closely connected that it is difficult to say where one's plans for spring management stop and those for swarm control start. Certainly by proper management in spring it is simpler to control swarming later. By simple rules laid down in this article we believe anyone can succeed.

After bees are set out of the cellar, or when wintered outdoors, each hive requires four things in spring. They are:

1—Adequate stores.

2—A vigorous laying queen.

3—Sufficient room for the queen to lay eggs and for incoming nectar.

4—Plenty of vigorous worker bees.

Now, if properly cared for the previous fall, early examination is not necessary, as these necessities will have been provided for in advance. Where bees are poorly managed in fall, only two of these four necessities can be remedied in spring. One is stores and the second sufficient room for the queen to lay eggs. It is not possible to provide vigorous young worker bees if most of them died off during winter. Seldom is it feasible to replace a failing queen in spring with a vigorous laying queen in regions where the main intense honey flows occur early.

Where a colony is found short of stores there are two remedies: the supplying of combs of honey saved over from the previous fall or feeding with syrup made from two parts of pure granulated sugar and one part of water. A simple feeder is made by punching holes in the cover of a 5-pound friction top pail, placing this on the frames of the hive directly over the cluster and covering all with an empty hive body to keep other bees out. In feeding early, lay an inner cover of several sheets of paper over the frames; cut a small hole through the paper directly over the cluster of bees and invert the feeder over the hole. The amount of feed is governed by the stores left in the hive in spring, by the seasonal outlook and the length of time remaining before adequate nectar is available.

The real object of spring management is to get each colony as near equal strength as possible and all built up so there are in the hive at the beginning of the honey flow a maximum number of bees of field age. If this maximum field strength occurs much previous to the main honey flow, great difficulty will be experienced in controlling swarming. If this maximum occurs much after the beginning of the main honey flow, a smaller honey crop will be produced, as many bees will then live past the time of their greatest usefulness.

After all, there are two main seasons for a beekeeper, first, from the end of the honey flow one year to the beginning of the honey flow next year, and, second, while the honey flow is on. Everything that is done at the time when the honey flow is not on should be gauged to bring about the greatest production of honey during the succeeding honey flow.

Colonies that do not swarm produce the maximum crops of honey with the minimum of labor required. Therefore spring management should be directed to get a maximum number of field bees at the beginning of the principal honey flow and to care for them looking toward preliminary methods of swarm control.

One thing of importance in the spring is protection. If bees in the northern tier of states, where wintered in packing, are put into the cases in two-story hives in fall, they will not have to be disturbed to give additional room until settled warm weather. If wintered in cellars, they need additional room soon after being set out. When opened in spring and the frames are found to be nearly full of brood and honey, another hive body of clean drawn combs or foundation should be given at once. If the weather is cool, add this broodchamber below the ones in which the bees are clustered. Beekeepers in the north often practice wrapping cellar-wintered hives in paper when setting them on the summer stands in the early cool days of spring. In the tier of states next south, where wintering on the summer stands is practiced, the value of spring protection too often varies according to the total losses of the beekeeper rather than that usually needed. When a colony has come through a long winter in weakened condition it may often need more protection during the cool nights of spring, with the wide variations of temperature, than in fall. Further south, in the tier of states where winter losses are frequently just as heavy as anywhere, bees are seldom given any protection. However, the value of a good windbreak can hardly be overestimated, as shown by Dr. J. H. Merrill.

Most methods of wintering apply to the clover region. However, the principles back of these methods are applicable anywhere, only the application differs according to latitude. Beekeepers in New York State, for instance, may use the clover honey flow to build up colonies to the maximum of strength for producing a crop of buckwheat honey, according to Willson. Opposite is the beekeeper in the sweet clover belt of Alabama whose bees build up early and where the main honey flows come late, according to Thomas. Here many beekeepers take bees away from the colonies and ship them north as package bees. This is simply a different form of management and serves to reduce the congestion of young bees in the hive just as the addition of broodchambers does in the North.

If upon examining bees in spring queens are found to be weak or the colonies short of bees (and the beekeeper is located in the North), by all means unite these colonies at once into one good colony. It does not pay to fool with poor queens or weak colonies in any locality where the main honey flow is early and the period of building up is short. This is a "hardboiled" method which gives no consideration to the poetry of beekeeping, but most of us are primarily after crops of honey. The real beekeeper hasn't time to coddle weak colonies and poor queens. If located in the South, where warm weather comes early enough to permit requeening and the period of building up may be stretched out over several months instead of several weeks, the beekeeper is often justified in coddling weak colonies. In the South it will be largely a matter of personal inclination; in the North, with short seasons, only "hardboiled" plans can pay.

Uniting is so simple that we repeat but one method. Place the hive containing a weak, queenless colony above the hive containing a queenright colony, with a single sheet of newspaper between. Punch one or

two small holes through the paper. Shake the bees off any frames of brood that may remain and put the brood in the hive below with the queen.

Beekeepers located in the white clover region, New England, the Virginias, Tennessee, Missouri, Iowa, Minnesota, and all states north, can easily estimate the honey required to winter a colony of bees successfully. In these states year after year the maximum number of days when the temperature goes above 57° F. is fairly constant. Phillips estimates that 90 pounds of honey are necessary to supply the requirements of a colony from the end of the honey flow one year until an adequate supply of nectar is available the following year in the clover region. No one is advised to leave 90 pounds of honey per hive in the fall. If the beekeeper leaves 30 he is gambling that Nature will supply 60. If there is a late, cold spring he loses. If he leaves 60 or more the bees come through spring with enough honey. It is only to supply a deficiency of stores, which is a fault of poor fall beekeeping, that one need examine colonies early in spring.

It is always well to remember in feeding honey to be sure that it is from a source not contaminated with the spores of American foulbrood.

The room necessary for bees in spring varies according to the time when the colony is expected to reach maximum strength. In northern states this maximum must be reached early if honey crops are to be harvested. Then at least two broodchambers will be required, where the bees are operated in either the 8- or 10-frame so-called standard hives. Beekeepers show a sensible and definite trend towards a large hive, and it is observed that users of large hives, giving adequate room for rearing of brood and storage of honey, are those who are producing the big crops of honey. Those who are interested in supplying this room in one brood body rather than two have been successfully using the Modified Dadant hive.

The number of eggs that a vigorous queen bee can lay in 24 hours has for the most part been overestimated by beekeepers. Experiments indicate only a vigorous queen will lay from 2000 to 2500 eggs in 24 hours for any extended number of days, according to Hambleton.

This fecundity requires more than an 8- or 10-frame "standard" hive to supply egg room. The frames are seldom fully occupied by brood because of the instinct of workers to deposit nectar and pollen adjacent to the brood. When early honey flows are intense, and inadequate room provided, parts of the combs soon become filled with capped honey and the queen is thus stinted for brood room. Hofmann in Minnesota, using the Modified Dadant hive, even finds it expedient there to use a second M. D. body on each broodchamber in spring to provide adequate room for the queen.

Aside from room required for broodrearing, there is a necessity for adequate space for temporary storage of incoming nectar. In examining brood frames during a honey flow beekeepers notice thin honey that runs out of the combs readily when a frame is turned sideways. If bees are crowded for room they will store much nectar in the brood combs that might otherwise be occupied by eggs. In a short time so much room may be taken up with nectar as to really crowd the queen out of much egg laying room.

In spite of the inadvisability of too much room during the cool days of spring, the beekeeper should give that extra room early during a heavy flow of nectar in spring and may give the room below the brood. Nectar occupies several times the amount of space that honey does, as nectar contains about 80 per cent water, whereas honey contains only about 20 per cent water. These figures are relative and show how a light flow of nectar can crowd the broodroom. This prevents the colony from building up to the strength it should have at the beginning of the honey flow, and may even force swarming before the honey flow. The writer believes this lack of room for incoming nectar, which is so bulky as compared to honey, is probably a common cause of early swarming because of the congestion it causes in the broodchamber.

In spring feeding one must remember the inadvisability of breaking up a cluster of bees on a day when the temperature is below 57° F. Close up the hives as soon as possible after examination. The danger of robbing in spring when natural sources of nectar are available is not as serious as during dearths of honey. Careless scattering of honey or syrup about the yard during feeding is likely to cause robbing. The colony whose brood is chilled by too long examination on cool days may lose a great deal of potential worker strength at a season when this most retards the colony strength in workers.

Only colonies that come through winter strong with strong bees actually winter, regardless of how many just come through alive. A bee has no power to rebuild worn-out tissues, and therefore bees surviving winter but weakened by excess consumption of honey or production of heat cannot regain vitality. This is one of the most frequent causes of spring dwindling. Unite weak colonies, kill weak queens and make amends for your carelessness the previous fall.

Remember that stores and bees are two essential things to produce quickly in spring, and you can only have these by properly wintering.

Provide adequate room for the queen, which cannot be supplied in one standard hive body if the queen is to lay enough eggs so the colony reaches its peak of strength in field bees at the beginning of the honey flow. Keep in mind the comb space beside that required for broodrearing, so that incoming nectar temporarily stored below for evaporation does not crowd the brood nest and enforce premature swarming.

If you are in a northern location where nights are cool in spring, and if your bees were wintered without packing or in the cellar, we urge you to consider the advisability of some sort of protection for them. The strength they have to spend in spring keeping the temperature of the hive to 94° F. or more, to permit broodrearing, means that these bees will wear out faster and the colony will build up slower. Where bees are wintered on the summer stands and properly packed in winter, do not remove the packing until necessary to avoid swarming when settled warm weather comes.

Keep in mind that the matter of adequate room for broodrearing and for the temporary storage of incoming nectar will do more at this season of the year to make your swarm control measures effective later on than anything you can do to regain your ground, once swarming has started.

May Disease Cure

By J. E. Thompson.

In the February Journal page 74, I read "May Disease." I will give you my experience and cure in the Tropics.

Poppleton used to write of curing it with sulphur, but this seems to be going out of vogue now. First take out all the frames and place them in another hive. With the sulphur, dust the four sides, bottom and entrance of hive, also the bees; take the frames, one by one, and dust both sides, bees and all. When all are in, dust the top bar of the frames and under side of cover, before covering bees. Do not put the sulphur on too thick, just to make a dusty appearance on the bees. If a little sulphur is sprinkled only on the top bar and at the entrance it will not effect a cure. Have never tried it out here, as I haven't had the occasion, but have done it for years in the tropics. At the first opportunity the diseased hive or hives should be requeened. And no queens should be reared from the colonies showing the disease, as the daughters will be sure to have it, as I have proved many times. I have had it show up in 3 generations. Some seem to think by dusting the frames it will destroy the brood, but I have never observed any brood thrown out by the bees.

Ohio.

OBITUARY

T. W. Livingston

T. W. Livingston, of Norman Park, Ga., known to many as the "Doctor Miller of the South," passed out at his home on Sunday, January 18. He was sick for only a few hours before his death, although for some time he had been getting increasingly feeble.

The first part of the week before his death he had made arrangements for the season's apiary work. He was the South's greatest practical beekeeper.

Colony Influence on Broodrearing

By J. H. Merrill, Apiarist, Kansas Agricultural Experiment Station

(Contribution No. 343, from the Entomological Laboratory, Kansas Agricultural Experiment Station. This paper embodies some of the results obtained in the prosecution of Project No. 126.)

"AS the queen is, so is the colony." The foregoing statement has appeared in print so often, and has been passed along by word of mouth so frequently that perhaps beekeepers have come to the point where they credit a little too much to the queen. It has often been noticed that an exchange of queens made no difference in the rate of building up colonies. If the queen were as supreme as she is popularly supposed to be, this would not be the case.

While conducting some observations on broodrearing at the Kansas State Agricultural College, it was noticed that there was no correlation between the number of eggs laid and the number of bees which developed therefrom. This was reported in the American Bee Journal, Vol. 45, No. 9, pp. 424-425, September, 1924. The number of eggs deposited daily depended upon the queen and the conditions under which she was laying. It was also noticed that if the weather was unfavorable for flight, a larger number of bees than usual remained in the hive. The result of this was an increase in the hive temperature, which induced the queen to increase her rate of egg laying. Although there was an increase in the number of eggs deposited, there was not a corresponding increase in the amount of sealed brood which developed from these eggs. This seemed to indicate that since each colony of bees was constant in the amount of brood which it reared, regardless of any fluctuations which occurred in the number of eggs deposited, each possessed an individual broodrearing power, which might be termed its brood power.

An experiment was conducted during the summer of 1924 to gain further light on this subject. Four colonies of bees were selected for this purpose. These were developed from package bees which had been placed in the hives just before the beginning of the experiment. As far as could be determined, the bees were all alike. The queens were raised by the same breeder and were of the same stock. Conditions were alike in each of the four hives, except that the colonies were not of equal strength. Every twenty-one days after the queens had begun laying, the total amount of brood in each of these hives was counted. The amount of brood in each hive indicated the amount which each colony could rear and, consequently, its "brood power". The queens were then interchanged and twenty-one days after egg laying had been resumed they were again interchanged. This was done four times during the season, and the results secured from the observations made on the amounts of brood reared appear in Table I.

TABLE I

Colony Performance

Colony number	Date	Total brood	Sealed brood	Larvæ	Eggs	Queen removed	Queen introduced
24	6- 2	863	385	289	189	24-22	22-24
	6-27	920	454	263	203	24-25	25-24
	7-21	811	479	192	140	24-26	26-24
	8-14	967	507	264	196		
	Total	3561	1825	1008	728		
	Average	890	456	252	182		
22	6- 2	658	281	272	105	22-24	24-22
	6-27	771	448	236	87	22-26	26-22
	7-21	633	388	185	60	22-25	25-22
	8-14	903	471	274	158		
	Total	2965	1588	967	410		
	Average	741	397	242	102		
25	6- 2	861	375	344	142	25-26	26-25
	6-27	696	408	158	130	25-24	24-25
	7-21	973	514	273	186	25-22	22-25
	8-14	834	548	183	103		
	Total	3364	1845	958	561		
	Average	841	461	239	140		
26	6- 2	433	224	138	71	26-25	25-26
	6-27	482	202	179	101	26-22	22-26
	7-21	751	461	183	107	26-24	24-26
	Total	1666	887	500	279		
	Average	555	296	167	93		

In the foregoing table the figures 22, 24, 25 and 26 designate the numbers by which the respective colonies were known throughout the experiment. The second column indicates the date at which each brood count and queen exchange was made. The total brood, sealed brood, larvæ and eggs are represented in their respective columns by square inches. If it were desired to obtain the actual number of brood, larvæ or eggs, this could be learned by multiplying these figures by 25, which is the number of worker cells per square inch. Under the columns "queen removed" and "queen introduced", the first number indicates the colony in which the queen had been during the preceding three weeks, and the second number designates the colony in which she was to remain for the next three weeks. The queen in colony No. 26 was superseded after the third brood determination; consequently, but three brood determinations were possible in that colony. The total results in each of the first three colonies were divided by four, and that of the last colony was divided by three, in order to learn the average colony performance throughout the season. For example, by referring to the above table, it will be seen that colony No. 24 had, on the second day of June, 863 square inches of total brood, 385 square inches of sealed brood, 289 square inches of larvæ, and 189 square inches of cells filled with eggs. The "queen removed" column shows that the queen was taken from No. 24 and placed in colony No. 22. The "queen introduced" column shows that the queen from colony No. 22 was then placed in colony No. 24. On June 27, the amount of brood was as indicated and the queen which now was in colony No. 24, but had formerly been in colony No. 22, was removed and placed in colony No. 25. The queen which was in colony No. 25 on June 27, but had formerly been in colony No. 26, was introduced into colony No. 24. All of these columns were given identical manipulations throughout the season. The temperatures, rainfall and honey flows are not included in this table, because what happened along these lines was as fair to one as it was to another.

A further study of the table will reveal the result of the exchange of queens. Queen A, which is the original queen in colony No. 24, had been working in a colony which had a brood power of 863, and was placed in colony No. 22, which had a brood power of 658. The amount of brood reared from her eggs dropped from 863 to 771 square inches, which will be seen to be the amount in colony No. 22 on June 27, the date of the second brood determination. Queen B had been working in colony No. 22, which had a brood power of 658, and was placed in colony No. 24, which had a brood power of 863, and, on June 27, it may be seen that the amount of brood reared from her eggs had increased to 920. Queen C was taken from colony No. 25, which had a brood power of 861, and was placed in colony No. 26, which had

a brood power of 433. The result of this exchange was that the total amount of her brood dropped from 861 to 482 square inches (see colony No. 26 for June 27). Queen D had been working in colony No. 26, which had a brood power of 433, and was placed in colony No. 25, which had a brood power of 861, and on June 27 it was found that the amount of brood had increased to 696 square inches.

On July 21 another brood determination was made and it was again found that with but one exception, which will be dealt with later, the amount of brood reared correlated with the colony rather than with the queen. On August 14 the final brood determination was made, and on this date there was found to be a complete correlation between the brood power of the colony and the amount of brood reared..

The exception mentioned above was when the queen from colony No. 24 was placed in colony No. 25 on June 27. It was found, on July 21, that instead of decreasing, as might have been expected, the total amount of brood increased from 920 to 973 square inches. This difficulty was brought about by placing this queen in a colony which very nearly approximated in strength the one from which she had been removed. It would have been preferable to have made this exchange between two colonies which differed more widely.

At the outset of the season, colony No. 24 ranked first in brood power, having 863 square inches. Colony No. 25 ranked second with 861 square inches. Colony No. 22 ranked third with 658 square inches, and colony No. 26 ranked fourth with 433 square inches. The same relative rankings held good when the average brood per colony for the season was considered, as shown in Table II.

Rank	Hive number	Original brood power	Avg. brood power for season
1	24	863	890
2	25	861	841
3	22	658	741
4	26	433	555

Although it has been seen that a correlation exists between the brood power of a colony and the amount of brood reared, there is no direct correlation between the performance of the queen and the amount of brood reared, as is shown in Table III.

In the first column of the above table the queens are designated as A, B, C, and D, and in the next column will be found the number of the colonies in which these queens deposited eggs at various times throughout the year. The figures in parentheses represent the relative standing of each queen in total brood, sealed brood, larvæ and eggs. The total amount of brood, the amount of sealed brood, the amount of larvæ, and the number of eggs are totaled for the entire season to learn how much brood was reared from each of these queens. It will be seen that Queen A ranked second in the total amount of brood, first in the amount of sealed brood, and second in the amount of larvæ and in the number of eggs produced. Queen B ranked first in the total amount of brood produced, slightly exceeding Queen A in this respect. It ranked second, however, in sealed brood, first in larvæ, and first in the number of eggs. The total brood column includes brood in all stages. Queen B ranked higher in eggs and larvæ than did Queen A; therefore, Queen B surpassed Queen A in the total amount of brood. It is only sealed brood which emerges, and, although B had more eggs and larvæ than did A, they did not develop into sealed brood. Consequently, Queen A was the mother of more adult bees, although Queen B surpassed her in egg laying. Queen C ranked third in total brood, in sealed brood and in larvæ, but ranked fourth in the number of eggs laid, which would indicate that a larger per cent of her eggs developed into larvæ than did those of Queen D, which ranked fourth in everything except the number of eggs deposited. This is another indication that colony No. 26 was deficient in "brood power".

TABLE III

Queen Performance

Queens	Colony number	Total brood		Colony number	Sealed brood		Colony number	Larvæ		Colony number	Eggs	
A	24	863		24	385		24	289		24	189	
	22	771		22	448		22	236		22	87	
	26	751		26	461		26	183		26	107	
	24	967		24	507		24	264		24	196	
		3352	(2)		1801	(1)		972	(2)		579	(2)
B	22	658		22	281		22	272		22	105	
	24	920		24	454		24	263		24	203	
	25	973		25	514		25	273		25	186	
	22	903		22	471		22	274		22	158	
		3454	(1)		1720	(2)		1082	(1)		652	(1)
C	25	861		25	375		25	344		25	142	
	26	482		26	202		26	179		26	101	
	22	633		22	388		22	185		22	60	
	25	834		25	548		25	183		25	103	
		2810	(3)		1513	(3)		891	(3)		406	(4)
D	26	433		26	224		26	138		26	71	
	25	696		25	408		25	158		25	130	
	24	811		24	479		24	192		24	140	
		1940	(4)		1111	(4)		488	(4)		341	(3)

When the data in Table III are compared with that in Table I, it will be seen that there is no correlation between the performance of the various queens and the amount of brood reared in the colonies in which they were working. It further shows that there is no correlation between the number of eggs deposited and the amount of sealed brood, nor is there any correlation between the number of larvæ and the amount of sealed brood. In Table I, where it is a matter of colony performance rather than of queen performance, it will be seen that a correlation exists in all of these respects.

The total amount of brood reared from each queen throughout the season is presented in Table IV.

In the above table it will be noticed that Queen B produced the largest total amount of brood of any one of the queens. Yet, in spite of the fact that this best producing queen of the four spent one-half of the season in the colony, which rated third in its brood power at the beginning of the season, this colony maintained the same standing at the end of the season. Queen A, the second best queen, spent the first three weeks and the last three weeks of the season in colony No. 24. This colony ranked first in brood power at the beginning of the season and maintained this ranking throughout the season. Queen C, which ranked third in the total amount of brood reared, spent the first three weeks and the last three weeks of the season in the colony which ranks second in the total amount of brood produced. Queen D started the season in the colony which had the lowest brood power. Its first brood count showed but 433 square inches of brood. It was then placed in a colony with a higher brood power and at its next exchange it was placed in a still higher colony. At the third brood count it ranked

TABLE IV

Individual Queen Record

Colony number	Queen A	Colony number	Queen B	Colony number	Queen C	Colony number	Queen D
24	863	22	658	26	482	25	433
22	771	24	920	26	482	25	696
26	751	25	973	22	633	24	811
24	967	22	903	25	834		
	3352		3454		2810		1940

second in the total amount of brood produced, owing to the fact that it had spent the previous three weeks in colony No. 24, which had the highest "brood power" in the spring. At the next exchange, this queen was returned to her original colony, where she was superseded. The bees evidently labored under the mistaken notion that this queen was responsible for their poor development. The further the analysis of this data is carried, the more evident becomes the fact that it is the brood-rearing power of a colony rather than the ability of the queen that determines the amount of brood which will be reared to maturity.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

BUILDING UP COLONIES

1. I find my colonies of bees very weak, about a handful or two of bees in some colonies, with a fine queen. The queens have just begun laying. I have bought some bees from a neighbor, but cannot get the frames out as the bees have built the combs crossways. Would it be safe to leave the weak colonies just as they are until the others swarm?

2. By using a queen excluder would it do to set a full colony on top of a weak one? Would the bees leave the queen above and go below?

If I should put a swarm of bees in front of a hive containing a weak colony with a queen trap on would it be necessary to cage the queen in the hive?

4. Later I want to use two brood chambers, as I have the eight-frame hives; how will I get the queen in the hives that I bought to go in the chamber above?

5. I also want to requeen these colonies; how will I get the queens out?

6. I would like to have some wired foundations, but my frames were made by a carpenter, no slots in them; could I fasten the wired foundation in them?

KENTUCKY.

Answers.—1. If your colonies are very weak, it might be advisable to buy a few pounds of bees to be sent from the South in April, to strengthen them.

2. If you set a strong colony on top of a weak one, the bees in the weak colony will be more likely to leave their hive and go up into the strong colony than the other way.

3. If you give either bees by the pound or a swarm to a colony it is always advisable to cage the queen for a little while until the strange bees are accustomed to her.

4. I do not believe there will be any difficulty in getting your queens from the lower hive into the upper one, whenever the season is warm and the hive full of bees.

5. Wired foundation may be put into ordinary frames but it will have to be fastened in by putting wires crossways, one near the top, one near the bottom and one or two between. The foundation should be fastened at the top with hot wax poured on, if there is no slot to fasten it in. Slotted frames are much more convenient to put in wired foundation than plain frames, and they don't cost any more.

PACKAGE BEES

I intend to start a new apiary with package bees. Would it be advisable to unite two 2-pound packages in order to make a much stronger colony at the beginning? Which would be the best way to unite two packages?

NEW YORK.

Answer.—I do not believe it would be advisable to unite two 2-pound packages to make a stronger colony. Better buy three-pound packages in the first place.

Bees in packages are better satisfied and come through in better shape when they have a queen than when they are queenless. So you will succeed best with packages containing queens. If you unite two together you will lose one of the queens. That is another reason why I don't believe in uniting two packages together on arrival. Ther. there is always more or less danger of the bees fighting and adding to the loss of transportation. Buy three-pound packages. You will find them quite sufficient.

SELLING AND PRICES

I want to start here with the bees; have got a little start already; will order some pound packages now pretty soon. It looks like everybody here said that it is hard to sell honey here and get a price for it. Do you think that we could get not less than 12 to 15 cents cash, a pound by shipping it? Can I sell honey any time in the summer time? Let us know what you think the price of honey will be. I will extract all of my honey and sell it by the barrel. And let me know when I buy barrels and ship them with honey, will they ship the barrels back again, or else pay me so much for them.

FLORIDA.

Answer.—You should have no difficulty in disposing of such honey as you are apt to get, especially during the first few years in producing honey.

Of course, if you have to ship it long distances you can expect a price of from 7 to 9 cents a pound in barrels, according to the present market. We do not believe you could get a price of 12 cents in barrels for this honey.

Ordinarily, when shipping honey in barrels, the container is supposed to go with the honey, and you do not get them back.

SUPERS FOR LARGE HIVES

I have four colonies of bees in Modified Dadant hives, and one small swarm in a 10-frame hive. I requeen these colonies about September 1. What would be the best to do, to use the shallow extracted frames in comb supers, or use the half-depth supers? As I would like to run one or two colonies for extracted honey, I would like to know which would work the best on colonies in Dadant hives. Would it be all right to take about 4 frames out of the old hive and start a new colony and send for an untested queen for the new colony? I thought this might stop them from swarming. Only one colony swarmed and it swarmed five times, but the fourth one returned and then swarmed two days later, making five times.

ILLINOIS.

Answer.—If you already have extracted comb honey supers we would suggest that you buy frames for these and use them until you get more colonies, when you can start in with the half-depth supers. Our recommendation, of course, is usually for the half-depth supers as being much preferable to the comb honey depth supers for extracted honey. Either one will work on the Modified Dadant hive. You are exactly right in assuming that you can take 4 frames of brood from the old stand and place on a new stand and give this new stand an untested queen. In doing this, however, you should also chase off quite a number of bees into the new stand before moving them, as you will realize a large number of bees return to the parent colony and you must be sure to have enough left in the hive so that they will cover the brood. This, of course, will stop swarming until the colonies strengthen up again.

BEES NEGLECT SUPERS

I had one colony of bees in a Modified Dadant hive and about the 1st of July I saw the queen in front of the hive and I put her back in the hive; about an hour later she was in front of the hive again, so I killed her. I knew there were queen cells in the hive. I pinched one of them and in time I had a good young queen. They built up fast and I gave them an extracting super as soon as 8 or 9 frames were full of brood and honey and they crammed the brood chamber chuck full of honey and brood, but did not work the least bit in the extracting super. Please let me know what the reason was.

ILLINOIS.

Answer.—I do not know, but I judge that they had been delayed in rearing bees by the change of queen and when the new brood hatched it was getting too late for a big crop. For both of those reasons they evidently preferred filling the hive body full of honey. This ought to make a splendid colony for next spring, as they will have ample stores and a young queen.

BEE TREE

I am just a beginner in beekeeping. I have one hive in cellar and a swarm of Italian bees in a big hollow oak tree in the yard; it came some time in June and was a big swarm. I intend to cut the tree. Please give me advice on this.

How would it be to cut the tree now and then cover with corn stalks and put them in hive in the spring? Or shall I let the tree stand till spring and then cut it down?

ILLINOIS.

Answer.—It is better to leave the bees alone until spring. If you cut the tree during the winter, it may damage the bees and they may suffer from the jar. But if you wait till spring and cut the tree then, the combs will be light and there will be less damage to the colony. After you cut the tree, just transfer the bees as we have advised in the booklet on transferring bees, and on page 124 of our March, 1924, number.

SIGNS OF FAILING QUEEN

I have two stands of bees, side by side, one facing east the other west. Both were packed in sawdust for the winter in the same packing case. Both were good, strong swarms last fall, were requeened at the same time last summer. Both had plenty of stores in hive bodies and, in fact, seemed to be in fine shape and equal in every respect.

They remained so, apparently, until about January or February, when they began to work occasionally and should begin to breed. Since that time one swarm has continued to grow stronger and the other one weaker.

The other day I unpacked them and examined them. The strong swarm had some old honey left and had practically filled the rest of the space in both hive bodies with new honey, brood and pollen. The weak swarm had 25 or 30 pounds of old honey left, practically no new honey or pollen. The brood consisted of several cells here and there of worker bees just hatching or about to hatch, and small patches of eggs on 2 or three frames which did not seem to be getting any attention, and no brood in intermediate stages. There were several handfuls of bees, mostly young. The queen seemed to look all right. Moths have gotten

(Continued on page 176)

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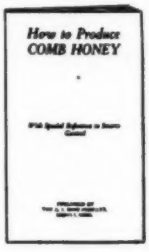

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(Continued from page 174)

a pretty good start. I have noticed for some time that there would usually be 3 or 4, or maybe a dozen, sick and dying grown bees in front of the hive.

From the above description, can you tell me what is wrong with my stand of bees and what should I do to prevent a recurrence of their misfortune?

TENNESSEE.

Answer.—Although it is impossible to pass, positively, upon the matter, most experienced beekeepers would tell you that the queen of that colony is evidently failing. That is why there is so little brood hatching. It is also probable that the eggs which appear to have no attention are eggs laid by one or more drone-laying workers. These workers have noticed the inability of the queen to keep up the population and they are volunteering to lay. It happens quite often, though not ordinarily, that drone-laying workers will be found in a hive containing an apparently healthy queen.

The remedy would be, if the hive is strong enough yet to rear queens, when drones begin to appear, to kill the queen and give the colony a comb of young brood, so they may rear another queen. Better yet, buy a queen and introduce her in place of the worthless one.

MOVING IN SPRING

I am planning on moving my bees to a new location two miles away this spring. Will it be all right, when the time comes to move them, to close the entrance of the hives in the cellar with wire cloth, carry them out, put them in a Ford car and move them immediately, or would it be better to give them a chance to have a cleansing flight before moving? The first plan would be the most convenient for me. I have eight colonies to move.

MINNESOTA.

Answer.—I believe the first method suggested will be all right, if it may be arranged to get the bees there in time so they may have a flight at once. The nearer the bees are in a swarming condition, disturbed and worried, the more likely they are to look around when released and recognize the spot. When they are allowed to cool down, before they have a flight, then they may imagine themselves on their old stand still, and may go out without examining the spot. It is always best to put some sort of obstruction in front of the entrance, so they may know something is changed to the conditions outside.

HONEY IN DEEP HIVES

With the deep hives, the bees put quite a strip of honey above the brood. If it is not used in the spring, they will swarm before they will pass over that strip of honey to go into the supers. How would you remedy this? TEXAS.

Answer.—This is a matter of locality. With us they always use up the honey above the brood during spring breeding. If your bees do not use it all, just uncap the cells above the brood, at the time of active breeding, before the honey crop and I will guarantee that they will use that uncapped honey for brood rearing and you will have overcome the trouble.

CAGING VIRGINS

How many days can a virgin queen be safely caged, upon emerging, so that there is no danger of releasing her too late to be mated? IOWA.

Answer.—I do not know whether anyone made tests of this since Huber and Reaumur, but they stated that a queen which had been confined to the hive 21 days or about would never produce worker eggs. Did any of our queen breeders ever try it?

Achord Bees and Queens for May

We have all the orders we can safely take for April shipment. Order now if you can use the bees May 5th and later. Pure three-banded Italians only.

2-lb. package with select young laying queen	$4.75
Five 2-lb. packages	22.50
Twenty-five 2-lb. packages	112.50
3-lb. package with select young laying queen	5.75
Five 3-lb. packages	27.50
Twenty-five 3-lb. packages	137.50

Express charges collect at destination. Safe arrival guaranteed. Inspection certificate and all necessary papers to carry packages through without delay. If packages are wanted by parcel post add 15c and postage to the price of each. We will advise you cost of postage to your P. O. If wanted without the queens, deduct $1.00 from the price of each package.

QUEENS

Select young laying queens $1.00 each, any number. Tested queens $1.75 each, any number.

Terms 20 per cent with order, balance a few days before shipment. No bees sent C. O. D. Producing and shipping package bees and queens has been our sole business for many years. We have passed the costly and dangerous experimental stage. Your order placed here brings highest value for the money invested. For complete information send for latest price list.

W. D. ACHORD, Fitzpatrick, Ala.

MONTANA & NORTHWEST

Lewis "Beeware," Dadant's Wired Foundation, Woodman Smokers. Cans and Glass Honey Containers Write for Catalog.

Service. Quality.

B. F. SMITH, JR.,
Fromberg, Mont.

GOLDEN QUEENS

Untested, $1.00 each, or six for $5.00; 100 untested queens, $75.00. Tested queens, $2.00 each.

I guarantee safe arrival, satisfaction, and ship nothing but the best.

G. A. Taylor
Lock Box, Luverne, Ala.

CARNIOLANS

winter extra well. The past winter has been a severe one. Good wintering is essential to get colonies in condition for an early honey flow. Besides, Carniolans are very gentle, very prolific, build up rapidly during the spring and do not swarm excessively if intelligently managed. Ask for my Free paper "MERITS OF THE CARNIOLAN BEE," describing Carniolans more fully and giving helpful suggestions on managing these bees for comb and extracted honey. Later we can supply queens and a limited number of nuclei and packages of Carniolans. Have been selecting and breeding Carniolans for 13 years. Will rear ITALIAN queens in a separate yard 12 miles from Carniolans—C. B. Hamilton strain.

ALBERT G. HANN
GLEN GARDNER, NEW JERSEY

"Our Bees are Gentle"

It Will Pay You

to get on our mailing list whether you expect to buy queens of us or not, as we are planning to send out letters of instruction to all who are on our mailing list, treating of current subjects such as Increase, Requeening, Swarm Prevention, etc. Further than this, we are always glad to answer questions concerning beekeeping in any line with which we are familiar.

Write for our Twenty-fifth Anniversary Catalogue descriptive of our High Grade Italian Queens.

JAY SMITH

Route 3, Vincennes, Indiana.

Important to Minnesota and Wisconsin Beekeepers

Save money by ordering Lewis and Dadant goods at factory prices from Winona or Graceville Minnesota.

We buy in car lots and ship same day order is received. Wired foundation and slotted frames is the greatest invention of several years. We like rush orders

Standard Lumber Company

WINONA, MINNESOTA, and GRACEVILLE, MINNESOTA.

April 1st —TWO THOUSAND PACKAGES— **July 1st**

Italian Bees and Queens

1925

NUCLEI WITH QUEEN		COMBLESS PACKAGE WITH QUEEN	
3-frame—1 to 9	$5.00 each	3-pound—1 to 9	$5.00 each
10 to 24	4.60 each	10 to 24	4.60 each
25 or more	4.25 each	25 or more	4.25 each
100 or more	4.00 each	100 or more	4.00 each
2-frame—1 to 9	3.75 each	2-pound—1 to 9	3.75 each
10 to 24	3.40 each	10 to 24	3.40 each
25 or more	3.25 each	25 or more	3.25 each
100 or more	3.00 each	100 or more	3.00 each

Extra queens, $1.00 each. After June 15th, 75 cents each; $60.00 per hundred. Ten per cent books your order.

Safe delivery and satisfaction guaranteed. Your business solicited.

W. E. BUCKNER, Mt. Vernon, Ga.

Meetings and Events

New York Library

Steps are being taken to establish in the New York State College of Agriculture at Cornell University, a good library of beekeeping literature. The Miller Memorial Apicultural Library at the University of Wisconsin has attracted much attention, and now Cornell University has set out to surpass it if possible. This is an honorable race. Plans are being perfected to obtain for the Cornell Library copies of every bee journal published throughout the entire world, since it is obviously desirable that there be at least one place, preferably more than one in the United States where all of these journals may be consulted.

The beekeepers of New York State are being asked each to dedicate one colony of bees to this library, the proceeds from these colonies to go to the University to constitute an endowment fund for the beekeeping library. The plan was proposed at the recent Short Course and met with a hearty response, so that the success of this plan seems assured. The College will send each beekeeper who enters upon such an agreement a metal plate to place on the front of the colony so set aside, indicating the purpose of the work of the bees. The library thus becomes in a sense the result of the work of beekeepers themselves and they may therefore feel a more intimate sense of ownership in it. Beekeepers of New York or elsewhere who desire to assist in this good work are invited to communicate with me.

Dr. E. F. Phillips,
Cornell University.

Iowa Short Course a Novel One

Paddock's latest short course should be of interest to all others who have to plan or who enjoy the benefits of educational work. It was held at the College at Ames, Iowa, from February 3 to 6, with an attendance of about 60, and very active interest every day. Kelty of Michigan, Cale from Dadant's, Boggs from Wisconsin, and Munroe from Ontario, were the outside speakers.

The numbers of the program were arranged so the talks came in the morning, while the students were rested and wide awake, with a full ten to twenty minutes intermission between the numbers to move about, ask questions and visit. No one went to sleep, and note books were used instead of being idle.

Each afternoon there was a series of demonstrations with actual work in progress: disease diagnosis, disease treatment, sterilizing equipment, grading honey, methods of queen rearing, etc. This is a novel scheme well worth copying.

A Plan to Boost Membership

President H. E. Gray, of the New York State Federation of Beekeepers Associations, has announced a prize competition open to local and regional beekeepers, associations in New York. To that organization, affiliated with and in good standing with the Federation, which shows the greatest increase in membership over the previous year there will be awarded a suitably engraved, silver mounted gavel, to be known as the President's gavel. This gavel will then remain the property of that association for one year, when it will again be awarded to the association making the best record. The first association to win the gavel three times will become the permanent owner.

Did You Notice the March Cover?

The picture is of the apiary of C. H. Hausmann, Hillsboro, North Dakota, right in the heart of that brand new northern bee country. The average, some of which you still see piled up, was over 250 pounds per colony. Now, don't all run up there. Let him have his crop. There are just as good locations **all over the northern United States.**

What pleases us most, of course, is the fact that he uses big hives. Hausmann plans to have a large commercial outfit. As an aid in the future, he has just been blessed with a 9½ pound son; a pretty fair start.

A Hard Rule

A recent postoffice ruling prohibits the shipment of honey through the mails to foreign countries except in 16-ounce containers. An attempt will be made to get a modification to this ruling since, if it is allowed to stand, it will work a hardship on beekeepers and honey shippers that may be considerable. Just why such a rule was made is not known.—(Thebesto Bee).

Precautions in North Dakota

The North Dakota Beekeepers' Association has appointed a legislative committee, headed by Dr. M. C. Tanquary, to secure a small appropriation for inspection to head off American foulbrood. They ask for $1,000; not much, but a start. Their request has passed the House, and possibly the Senate by this time.

A Waxmoth Enemy

During the past few months a Hymenopterous parasite of the greater waxmoth has been observed at Fort Collins, apparently the first reported on the continent. Let it spread, gentlemen, let it spread.

Crop in Manitoba

The honey crop in Manitoba increased from 906,000 pounds in 1921 to 3,041,000 pounds in 1923. This is an increase of 235 per cent in that short period.

"Honey, Dat's All"

Fargo beekeepers are using the "Honey, Dat's All" lantern slide at the State Theater to stimulate the

(Continued on page 181)

California Prospects

By C. Renshaw.

This winter, like last, is thus far a dry one in the southern part of the state. At this time prospects for a crop from sage, buckwheat, deerweed and blue curl are not promising and, in fact, very doubtful.

This district (Kern County) which is the southern end of the San Joaquin Valley, enjoyed a good flow from alfalfa last year, but my bees were two weak to take full advantage of it, owing to the poor condition they were in as a result of the poor preceding year and dry spring. This year there are hopes of another story, for my bees are in the best condition one could wish for. They have ample stores, were requeened last August and a late flow caused the young queens to build up fine clusters of young bees for the winter. In one apiary of 91 colonies I have lost but one, and that went into winter queenless. In another apiary of 80 colonies they are all alive and in fine condition. I rear my own queens except a few that I buy to change and improve the stock. I have bred Goldens, but they are too susceptible to paralysis. I have some Carniolans, but have not come to any conclusion in regard to them yet, except that it is an all-day job to find a queen in a strong colony. I like the dark leather-colored, three-banded Italians best, "the tobacco juice color." California.

Ames Abe Says:

I'm gettin' the spring itch, folks. Now some of you will be askin' me what the spring itch is, an' I'll tell you it's what you get before you get spring fever. Spring itch begins to come along about this time o' year when the air gets soft and smelly-like, the grass gets a little green and lively lookin' and the old hen trys scratchin' the ground again to see if the frost is gone out yet. That is when spring itch time is, when the palm of your hand gets to wantin' a hoe handle.

Spring fever, well, that's somethin' different. I reckon it's sort of a relapse after an attack of spring itch, just like a relapse from the flu or smallpox. Anyhow I got the spring itch now, and it's a real nice, likeable, friendly sort of an epidemic. From State College Bulletin, Ames, Iowa.

Fighting Ants

Ants are the greatest enemy to bees with which the Southern beekeeper has to contend. Drive four stakes or iron rods, 10x20 inches apart extending 18 inches above the ground. Take four friction top syrup pails and put a small amount of crude oil in them. Now turn the buckets bottom upwards over the stakes and set the hive on the buckets. The flange on the buckets will hold the oil and the ants cannot get in.

Jewell McKay, Texas.

Meetings and Events

(Continued from page 179)

consumption of honey. This is one of the largest movie houses in the city. The charge, which is borne by local members, is $1.00 a day and the slide is shown with all pictures.

Queen Importation Rules

Those who need to export queens for breeders abroad must comply with the regulations of the United States Department of Agriculture, as given in Department Circular 287. This circular is free and will be sent to anyone on request.

The rules, briefly, demand a request for permission to import, from the Bee Culture office of the Bureau of Entomology, Washington, D. C., together with an order for the queens with necessary draft or money order, made out to the breeder. If the request can be approved the order and money will be sent to the breeder. If not, it will be returned to the sender.

Prohibiting Bees on Combs

The State of North Dakota, through its Commissioner of Agriculture, has passed a regulation forbidding the shipment of bees on combs, second-hand hives and other beekeeping fixtures into the state. This measure has been taken by several other states already. Through the hard work of the State Association, funds have also been provided, through the Legislature, for the proper enforcement of the rule and for inspection.

Umatilla County

Umatilla County Association (Washington), at a recent meeting in Hermiston, ordered quite a volume of supplies co-operatively, saving the members considerable. The Secretary also reports favorable prospects for the season. Especially interesting is the fact that a trial is being made of non-poisonous sprays which, if successful, may give relief to the beekeepers in the orchard districts.

Horrible Geography

Last month, we noted, under "Meetings and Conventions," the activity of the Anderson County Association, placing this lively organization in North Carolina. Now, that is just the trouble, with our modern education. It doesn't teach us geography rightly. The honor belongs to South Carolina.

Now, North Carolina, go ye and do likewise.

Continuing Grading Study

E. W. Tschudi, of Johns Hopkins University has been appointed to the U. S. Office of Bee Culture to investigate honey colors and complete the honey grader which was begun last year.—(Thebesto Bee).

Short Courses in Illinois

Under the direction of the State Association two short courses for beekeepers were recently held in Illinois, one at Carbondale, February 22-23, with a registration of 60, and one at Elgin, February 24-25, with 35 present. Both were well received and of much interest. A similar course is planned later for the central part of the state.

A Pioneer Passes On

We have just learned of the death of Mr. J. J. Hammel, of Cordes, Ariz., a beekeeper of many years standing, operating about 100 colonies of bees. Mrs. Hammel, being unable to care for the apiary, offers the bees for sale, and also the farm and home. Anyone interested should write direct to Mrs. J. J. Hammel, Cordes, Ariz.

Pushing "Blossomsweet"

Mr. T. L. Miller, a "Blossomsweet" honey salesman, has recently distributed 10,000 "Blossomsweet" leaflets in Brooklyn, N. Y., where he is building up a good trade for the honey of the Marketing Association of the New York State Federation of Beekeepers.

Spraying and Bee Poisoning

Although considerable progress has been made, in the past twenty years, in the mind of orchardists, as to the proper time to spray and the necessity of avoiding the destruction of bees and other flower-fertilizing insects, there are still a few orchardists, especially among the less extensive ones, who do not consider it at all a necessity to try to save the insects in spraying.

In fact I believe there are still a great many people who consider an insect of any kind as a nuisance to be done away with. Henri Fabre made the statement that many people, when they see an insect, appear to have only one thought—crush it, do away with it. There are still a few who imagine that bees and other honey-gathering insects take away the substance of the flower, when they gather the honey. They do not realize that their purpose in nature is the fertilization of the flowers. They range all insects among injurious pests, just as some people range all birds under the idea of crop-destroying pests, because they have occasionally seen a crow pull up the sprouting corn.

It is important for the beekeeper to convince the orchardist of the necessity of saving the bees, by avoiding spraying orchards during the bloom. Some people tell us that it is impossible to do otherwise than spray during bloom. I can make a positive answer to that. We have a number of acres of apple and pear orchards which we spray regularly, but never during the bloom. Last season, our crop of apples was nearly 3 carloads of perfect fruit. In fact the customers, many of them, stated that they had never seen more perfect fruit. If you have neighbors who spray and destroy some of your bees, show them this statement.

A Freak From Bee Laws

By Ray Hutson.

The situation described by Lewis P. Tanton in the American Bee Journal for December, 1924, page 564, admits of another interpretation than that placed upon it.

For one thing, it points out the need of a more accurate knowledge of the heredity of our charges, the bees. It is quite generally conceded by students of heredity that we cannot accurately judge the potentialities of an organism without knowing its antecedents. We have no intimation in the article as to the parentage of breeding of the queen in question. Saying it in a slightly different way, it is possible that if we knew the records of this queen's forbears the vigor of her progeny would not be such an apparent deviation from expectations.

Biologists today admit, and breeders practice the principle that the breeding test is the acid test for an animal. Extension circulars sound and resound the warning to farmers that the animal whose offspring are valuable should not go the way of our familiar goose of golden egg fame until every possible vigorous offspring has been secured. Feebleness is not altogether indicative of what the offspring will be. Old age is inevitable in the light of our present knowledge, but there are numerous other inducive causes for feebleness in a queen which are patent to every bee man. Old or injured queens will in a majority of cases transmit their basic qualities as well as young, normal queens.

It is in the application of the foregoing statements that their value lies. If we know the pedigree of an animal we may expect certain results. Since, in the case of the queen bee it is usually possible to know but half the parentage, we cannot predict so accurately, and the breeding test becomes doubly valuable. A really good queen is like rubies, above price, and every reasonable effort should be made to perpetuate her offspring.

These few words are not an appeal for a breeding test on every queen, but are written with the idea of causing a greater appreciation of the value of realizing when one has a good queen as evidenced by her offspring. It will also serve at the same time, perhaps, to point out the value of queen records.

New Jersey.

Texas Circular

A new circular from the Texas Experiment Station, College Station, Texas, by F. L. Thomas, the State Apiarist, deals with foulbrood control and bee diseases and with the foulbrood laws. It contains a report of the inspection work from 1910 to 1923. Write for Circular No. 36, "Foulbrood Control and Diseases of Bees."

No Bonding For Me

I wish to go on record as opposing the bonding of queen breeders. I consider, when I give the editor the names of the very best citizens my community affords and, in addition, offer a money back guarantee, I have done all any man should ask. We can't start anything nowadays without having a lot of high salaried officers to look after us to see that we sit up straight. What kind of a bond is the man going to give at the other end of the line? Who is going to see that the other fellow doesn't kill one of his worthless queens and send her to the breeder he ordered from and report "dead queen?" I believe queen breeders and package shippers will come as near doing the right thing as those at the other end of the line. Let those who oppose speak out. No bonding for me!

S. H. Hailey, Pinson, Tenn.

The Little Bee

I have traveled east, I've traveled west,
To find the spot I loved the best,
And this one thing I've found is true,
The busy man is doubly blest.
He's blessed in health and strength each day,
He's blessed with money for his pay,
And taking it upon the whole,
He's apt to have the richest soul.

The busy bee, I've watched with pride,
As deeply in the flower he hides,
And this one thing is cinched with me,
I'll never be without a bee.
I've been a preacher many years,
And on the farm, fed hogs and steers;
Now this is good within its way,
But the bee, with me, has come to stay.

Don Whitmore.

Crop and Market Report

Compiled by M. G. Dadant.

It is very difficult, at this time of year, to get an accurate report from correspondents as to the condition of bees and plants from the fact that we are now at a season when the change from winter to spring conditions comes and the change in plant and bee conditions is apt to be very great within a period of a few weeks.

Reports, however, seem to indicate several things which will be of interest to our readers.

In the first place, we only have one report of excessive loss, and this applies to certain sections of Colorado, where bees were left unprotected during the severe cold weather of winter and wintered out of doors.

There are scattering reports, also, of losses of from 10 to 15 per cent, but the average throughout the country will not run, we believe, over 3 to 7 per cent loss, and there are large numbers of reporters who report practically no loss or not more than 1 to 2 per cent.

We have report from one of our Colorado contributors that his loss in 700 colonies is only 3 colonies, so far, and he expects very little loss from now on.

In general, we might say that losses, so far as reported, are extremely small and probably less than any recent year.

The condition of colonies is also reported to be much ahead of a year ago. In fact, practically every party reporting stated that colonies were coming through in excellent shape, although there was a possibility of a shortage of stores, owing to the excessive long period of very cold weather.

We would admonish our readers, therefore, to watch their colonies carefully at the first opportunity and piece out with sugar syrup until the colony has reached the point where it can get natural forage sufficient to keep brood-rearing at the highest possible point.

It is imperative in order to have bees raised for the crop that there be no cessation in brood-rearing and that the queens be allowed to go on laying eggs unrestricted through ample food supply.

There are reports, however, as to condition of honey plants which will not warrant any too rosy prospects in some parts of the country. We refer especially to Texas, New Mexico, Arizona, southern Colorado, Utah and Nevada, and also southern California. All of these sections are reporting that honey plants, although in fair shape, are suffering from drought, and that unless this drought is broken within a reasonable length of time it is most certain to curtail the honey crop for the season of 1925. The conditions are especially discouraging in southern California. This does not apply, of course, to the orange sections nor does it apply to northern California, where conditions are just the reverse and seem to be very good. In all, our idea is that the prospects for crop throughout the whole United States are remarkably good with the exception of the locations already referred to, and of course these may be bettered by copious rains during the next few weeks.

There have been large quantities of snow throughout the entire North and this, of course, will guarantee ample moisture for the spring season.

In addition to this, the entire white clover area of the central West reports honey plants in excellent condition and prospects fine.

While the snows in the inter-mountain territory have probably not been as heavy as could be wished, still there is a much larger reserve of snow for the coming year's irrigation than there was last year at this time. This probably will be augmented also by more snow during the spring season, so that prospects there are also considered favorable.

An off-hand guess from reports already coming in would be, in my estimation, that there was less loss of colonies than a year ago, honey plants will be at least in as good condition as in 1924 and the prospects for a crop better than the season past. In fact, if we might judge from reports already coming in as to conditions generally, we would be apt to anticipate a large honey crop for the entire country for 1925.

Already reports are coming from the southeast that the honey crop is excellent and beekeepers in that section are much encouraged in spite of the fact that Florida and Georgia have suffered no inconsiderable losses through the heavy floods a month or so ago.

STATEMENT OF OWNERSHIP

Statement of the Ownership, Management, Circulation, Etc., required by the Act of Congress of August 24, 1912, of American Bee Journal, published monthly at Hamilton, Illinois, for April, 1925:

STATE OF ILLINOIS, County of Hancock. } ss.

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared M. G. Dadant, who having been duly sworn according to law, deposes and says that he is the Business Manager of the American Bee Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, rendered by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are:

Publishers, American Bee Journal, Hamilton, Ill.

Editor, C. P. Dadant, Hamilton, Ill.

Managing Editor, Frank C. Pellett, Hamilton, Ill.

Business Manager, M. G. Dadant, Hamilton, Ill.

2. That the owners are:

C. P. Dadant, Hamilton, Ill.
H. C. Dadant, Hamilton, Ill.
V. M. Dadant, Hamilton, Ill.
C. S. Dadant, Hamilton, Ill.
L. C. Dadant, Hamilton, Ill.
M. G. Dadant, Hamilton, Ill.
Leon Saugier, Hamilton, Ill.
Jos. Saugier, Hamilton, Ill.

That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages or other securities, are: none.

(Signed) M. G. DADANT.

Sworn to and subscribed before me this 20the day of March, 1925.

BIRDIE ASH,
Notary Public.

Business Manager American Bee Journal.
My commission expires March 6, 1926.

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

BEES AND QUEENS

BEAR'S Mountain Bred Bees.

FOR SALE—Choice bright Italian queens. I have been building up this strain for the last 20 years for vigorous hustlers, good winterers, gentleness and fine color. These queens will equal the best on the market. Health certificate goes with queens. Prices: untested queen, $1.25; 12 untested queens, $12.00; 1 breeder, $5.00.
Emil W. Gutekunst, Colden, N. Y.

ITALIAN 3-banded queens. May, $1.25 each or six for $7.00; June and after, $1.00 each or six for $5.50. J. W. Romberger,
3113 Locust St., St. Joseph, Mo.

WE want to quote you prices on your May and June queen requirements. A card will bring our circular and price list.
R. V. Stearns, Brady, Texas.

LEATHER COLORED ITALIAN QUEENS—$2.00; after June 1st, $1.00. Tested, $2.00. A. W. Yates
15 Chapman St., Hartford, Conn.

BRIGHT three-banded Italian queens. Guaranteed in every way; 33 years' experience. Every queen a good queen. Price list sent on request.
J. F. Diemer, Liberty, Mo.

WE are offering our high-grade untested Italian queens at $75.00 per hundred for May and cheaper for June delivery. An inquiry will bring our circular.
R. V. Stearns, Brady, Texas.

COMBLESS PACKAGE BEES shipped on sugar syrup. Pure Italian stock with queen: 2-lb. pkg., 1 to 10, $4.50; 3-lb. pkg., 1 to 10, $5.50. Without queens deduct $1.00 from each above package. No disease, and safe arrival guaranteed; 20 per cent books orders. Reference furnished.
John A. Williams, Box 178, Oakdale, La.

See my ad in display for three-band Italians. J. Allen, Catherine, Ala.

FOR SALE—Fine golden Italian queens, untested, $1.00 each; tested, $2.00. Ready for mailing May 20. Satisfaction guaranteed. J. F. Michael, Rt. 1, Winchester, Ind.

PACKAGE BEES—Shipping during April and May from my honey colonies. Bees, shipments and price guaranteed satisfactory. Harold Evans, Durham, Calif.

SUPERIOR Italian bees and queens delivered. Two-pound packages with selected queens: 1-4, $4.75; 5-15, $4.60; 16-24, $4.40; 25-49, $4.25;; 50 up, $4.00. Everything guaranteed.
W. C. Smith & Co., Calhoun, Ala.

PRIZE WINNERS—Three-band queens and bees. Untested queens, $1.00 each, 6 for $5.00; 2-lb. combless packages, including untested queen, 1 to 9, $3.50 each; 10 or more, $3.25 each. There are none better at any price. I guarantee them to be hustlers. Health certificate accompanies each shipment.
W. S. Johnson, Alexandria, La.

PRICES of my golden Italian queens this spring will be, untested, $1.05 each; 3 for $5.50; 12 or more, 80c each; with state health certificate. Safe arrival insured.
Hazel V. Bonkemeyer,
Rt. 2, Randleman, N C.

FOR BARGAINS in 3-lb. package bees and young queens. May delivery. Free of disease, and safe arrival guaranteed. Address, Bert W. Hopper, Rocky Ford, Colo.

PACKAGE BEES from healthy stock. Shipping cages large and light. I have never disappointed a customer by failing to make shipment. See my advertisement on page 181. M. G. Ward, Lathrop, Calif.

FOR SALE—Golden queens producing bees yellow to tip; untested, $1.00; tested, $1.50; select tested, $2.50. Disease free, safe arrival and satisfaction guaranteed.
Address H. G. Karns, Victoria, Va.

THREE-BANDED ITALIAN QUEENS, $1.00 each; $9.00 dozen. Three pounds bees and queen, $3.90.
C. G. Ellison, Belton, S. C.

BOOKING ORDERS for May delivery. Two-frame nuclei Italian bees and queen, $4.00 each; 20 per cent cash with order. Everything guaranteed.
J. G. Prosser, Ft. Dodge, Iowa.

FINEST Italian queens, $1.00 each.
Wm. R. Stephens, Wingate, Indiana.

SCOTT QUEENS for 1925. Our high-grade queens will be ready about June 1. Three-band only. Our queens are bred for heavy honey production. They get big crops for us and will for you. They are gentle too. One, $1.50; six, $8.00. Free circular.
The Scott Apiaries, La Grange, Ind.

BEAR'S Mountain Bred Bees. Place your orders now, I have to decline orders every year for this excellent stock. Fine Italians, disease free. The hardiest bees in existence. Long range honey gatherers. A trial is all that I ask. Send for particulars.
Hiram H. Bear, Hinton, West Va.

QUALITY AND SERVICE—We have it, when it comes to queens. Prices: untested, $1.00 each; 25 or more, 85c each; 100, 70c each. Tested, $2.25 each; 25 or more $2.00 each; select tested, $2.65 each; 25 or more $2.25 each. Satisfaction and safe arrival guaranteed.
E. E. Salge & Bros., Weslaco, Texas.

PURE ITALIAN QUEENS—Untested, $1.00; tested, $1.50; 2-lb. package, $3.00. Add price of queen wanted. Safe arrival guaranteed after May 10. Write for prices on colonies. Birdie M. Hartle
924 Pleasant St., Reynoldsville, Pa.

WARRANTED pure mated Italian queens, $1.25 each; mailed in my sure introducing cages; no blacks or hybrid bees around here, so the drones are pure Italian. Queens will be ready to mail about May 15.
Daniel Danielsen, Brush, Colo.

BEES AND QUEENS—Golden and three-banded Ready to ship March 20. Tested, each, $1.00; 12, $10.00; 50, $40.00; 100, $75.00. Untested, each 75c; 12, $8.40; 50, $32.50; 100, $55.00. Satisfaction guaranteed.
I. N. Bankston,
Rt. 6, Dallas, Texas.

BEES AND QUEENS—Two-lb. packages of Italian bees with untested Italian queen, $4.00; 10 or more packages, $3.75 each. Three-lb. package of Italian bees with untested Italian queen, $4.75; 10 or more packages, $4.25 each. Two-lb package hybrid bees with untested Italian queen, $3.75; 10 or more packages, $3.50 each. Three-lb. package hybrid bees with untested Italian queen, $4.25; 10 or more packages, $4.00 each. This last offer is a real saving to the purchaser, for in a few weeks the colony will Italianize. Ten per cent books your order. Safe delivery guaranteed. Order direct from this ad. H. E. Graham,
P. O. Box 666, Cameron, Texas.

GOLDEN ITALIAN QUEENS untested, about May first, $1.00; 6 for $5.40; 12 or more, 80c each; last fall's rearing, tested, $1.50; select tested, $2.50. No disease, good queens, safe arrival and satisfaction guaranteed. D. T. Gaster,
Rt. 2, Randleman, N. C.

TRY Peterman's Queens. Bred from select breeders, raised in standard frame, strong nuclei, well laid up before caging and last and most important, I select out only the largest, thrifty layers to sell, killing all others. From experience, I know this pays. Am building a business on a square deal basis. Prices: 1, $1.25; 6, $7.00; 12, $13.00; 25 at $1.00 each; 100, 90c each.
H. Peterman, Lathrop, Calif.

QUALITY COUNTS—Try Pinard's queens and package bees. Booking orders now for spring delivery. Circular free. Yours for better bees.
A. J. Pinard, Morgan Hill, Calif.

EDSON APIARIES are now booking orders for spring delivery of our renowned select untested queen bees at the following prices: One to fifty, $1.25 each; fifty, $57.50; 100, $100. Prompt service and a guarantee embracing entire satisfaction of our stock.
Edson Apiaries, Gridley, Calif.

SHE-SUITS-ME QUEENS — Three-banded $2.00 each. After June 5, $1.00 each. Send for Price list of queens, nuclei and package bees. Free with each initial order, one Safin cage. Allen Latham,
Norwichtown, Conn.

BURLESON'S PACKAGE BEES—Shipped without combs or honey, fed while in transit on sugar syrup, and guaranteed to be no chance to contract disease of any kind. For prices, etc., write
T. W. Burleson, Waxahachie, Texas.

FOR SALE—Golden Italian Queens, untested $1.00 each; 6 for $5.40; 12 or more 80c each; tested $1.50 each; select tested $2.50 each. Apiary inspection and found no disease of any kind. Safe arrival and satisfaction guaranteed. Sam Hinshaw,
Randleman, N. C.

AM BOOKING ORDERS now for my famous gray Caucasian queens; ready April 15. Untested, one, $1.50; dozen, $15.00. Circular free. Bolling Bee Co., Bolling, Ala.
Zed Gafford, Prop.

TEN YEARS of experience in breeding queens of quality Goldens, also gray Caucasian. Golden queens, one, $1.25; dozen, $11.50. Gray Caucasians, one, $1.50; dozen, $15.00. Pure mating. Safe arrival guaranteed in United States and Canada.
Tillery Bros., Rt. 5, Greenville, Ala.

FOR SALE—St. Romain quality bees, the pure three-banded Italian bees and queens at a very reasonable price. A 2-lb. package with queen, price $3.00; a 3-lb. package, $4.00; a 4-lb. package, price $6.00. Orders are booked with 20 per cent down and balance 20 days before shipment. Deliveries to be made between May 15 and July 1, 1925. Some shipments can be made earlier if weather permits. Bees are shipped on a comb of emerging brood and enough honey for feed in transit. Bees are absolutely free from disease. I furnish health certificate with each shipment. I also guarantee safe delivery and satisfaction. Address to
John St. Romain, Marksville, La.

MERRILL'S QUEENS—$1.00 each.
R. E. Merrill, Muncy, Pa.

MOTT'S northern bred Italian queens. Select untested, $1.25; after June first, $1.00 each. Select tested, $2.00. List free.
E. E. Mott, Glenwood, Mich.

GOLDEN Italian Queens and Nuclei for 1925, the big, bright, hustling kind (the kind that gets the honey). Satisfied customers everywhere. Untested, $1.00 each; 6, $5.00; 12, $10.00; $75.00 per 100. Tested, $1.50 each; two-frame nuclei with queen, $4.50 each; 10 or more, $4.00 each. Safe arrival guaranteed.
E. F. Day, Honoraville, Ala.

PACKAGE BEES, also queens. It will pay you to get our prices.
J. J. Scott, Crowville, La.

TRY Peterman's queens for quality and a square deal. Circular free.
H. Peterman, Lathrop, Calif.

BRIGHT ITALIAN QUEENS—One, $1.00; 6 for $5.00 or 12 for $10.00. Write for prices on large orders or package bees.
P. B. Skinner, Greenville, Ala.

FOR SALE—Forty colonies bees in standard 10-frame hives. No disease; reasonable. H. H. Reim, Hustisford, Wis.

I AM now booking orders for my leather-colored Italian queens and package bees. Write for prices.
W. O. Victor, Jr., Uvalde, Texas.

EARLY PACKAGE BEES & QUEENS that make a surplus the first season. Most northern breeder in California. See larger advt. J. E. Wing, Chico, Calif.

IF YOU WANT good, bright Italian queens, by return mail, send your order to us. Queens, $1.00 each; $10.00 per dozen; one pound bees with queen, $3.00; 2 pounds bees with queen, $4.75. We pay charges.
Graydon Bros, Rt. 4, Greenville, Ala.

PACKAGES with queen already introduced. Buy your packages with queens introduced and avoid loss. Best pure mated Italian queens. Guaranteed. State inspected. No disease. Let our circular tell you about them and explain the advantages of our package bees and introduced queens.
A. O. Smith, Rt. 12, Mt. Vernon, Ind.

PACKAGE BEES and three-band Italian queens that please. Our twenty years experience here in selective breeding of queens and the shipping of bees are at your service. No disease in this section. For prices, references, etc, write
Allenville Apiaries,
Allenville, Marengo County, Ala.

SEE our display advertisement on page 152.
Loveitt Honey Co.

SEE my display on page 188.
Jes Dalton, Bordelonville, La.

ITALIAN QUEENS—Write for price list.
C. B. Saunders' Apiaries, Merom, Ind.

GOLDEN THREE-BANDED and Carniolan queens. Tested, $1.00; untested, 75c each. Bees in 1-pound package, $1.50; 2 pounds, $2.50; 3 pounds, $3.25. Safe delivery guaranteed. C. B. Bankston,
Box 65, Buffalo, Leon Co., Texas.

HARDY ITALIAN QUEENS—$1.00 each.
W. G. Lauver, Middletown, Pa.

FOR SALE

BEAR'S Mountain Bred Bees.

FOR SALE—80 colonies Italian bees in new 10-frame hives.
Joseph H. Huber, Norborne, Mo.

FOR SALE—8 colonies of Italian bees in Modified Dadant hives, with equipment. All colonies guaranteed free from disease.
Wm. Larsen, Quinnesec, Mich.

30 COLONIES of Italian bees in double ten-frame hives. All requeened last September, with plenty of stores and free from disease. W. A. Wainright,
Jacksonville, Ill.

FOR SALE—Twenty colonies of Italian bees. No disease; good condition. Hoffman frames. No. 17 reversible extractor.
H. F. Hitch, R. F. D., 2, Harrisburg, Ill.

FOR SALE—300 colonies of bees in the resort section of northern Michigan, including locations, etc. Fine quality of honey and no failures. Also modern home in county seat if wanted.
P. W. Sowinski, Bellaire, Mich.

FOR SALE—100 colonies bees in healthy condition; also 2 and 3-frame nuclei on wired combs. Write for prices.
James Johnson, Pocahontas, Ark.

ABOUT twenty colonies of bees for sale at $8.00 per colony. Healthy, strong colonies. Guaranteed; no disease. Write or call. Otmar Krueger, Winsted, Minn.

FOR SALE—Twenty-five Italian colonies, modern hives; make offer; spring shipment. O. Biermann, Malcolm, Iowa.

GLADIOLI BULBS—Closing out. Bargain.
Van Wyngarden Bros., Hebron, Ind.

FOR SALE—1 to 150 colonies in 10-frame hives; new and painted combs built from full sheets wired foundation. These colonies are headed with queens from the best breeders in the country. Health certificate furnished. Will ship any time buyer wishes.
Bert Gander, Bayard, Iowa.

FOR SALE—A due bill on Loveitt Honey Co., Phoenix,, Ariz., for 85 two-pound packages of bees at $2.00 each.
R. W. Wright,
429 Nevada St., El Monte, Calif.

FOR SALE—At a sacrifice, all of the assets of the Rocky Mountain Bee Company, Billings, Montana. Book value $30,000 to $35,000. Or will sell controlling interest in company. Address, Mrs. W. Hickox,
P. O. Box 1319, Billings, Montana.

FOR SALE—175 colonies Italian bees and equipment. Write for particulars.
J. R. Whitney, Loraine, Ill.

FOR SALE—2-pound package bees with untested queen. Postpaid, $4.00. Boardman feeders, used, with jars, per 100, $15.00. Root standard hive bodies, 10-frame, new, nailed and painted and frames wired, $1.50 each in lots of 100. Root Standard hive bodies, 10-frame, new, nailed and painted and frames wired but slightly damaged by moths, $1.00 each in lots of 100. Dadant and Airco, old style foundation, 50c per pound in 50-pound boxes. Offered for quick sale by Hugh M. Matheson, Agent,
412 S. W. 2nd Ave., Miami, Fla.

SEE our display advertisement on page 152.
Loveitt Honey Co.

HONEY AND BEESWAX

BEAR'S Mountain Bred Bees.

FOR SALE — White and amber extracted honey. Write for prices. State quantity wanted. Dadant & Sons, Hamilton, Illinois.

HONEY in 10-lb. pails. White clover only.
W. L. Ritter, Genoa, Ill.

WANTED—Car or less lots of extracted clover honey. Mail sample and quote lowest cash price.
A. W. Smith, Birmingham, Mich.

CHOICE SWEET CLOVER HONEY for sale at very attractive prices. State quantity desired and we will quote you f. o. b. Council Bluffs or Kansas City.
A. I. Root Company of Iowa,
Council Bluffs, Iowa.

EXTRA FINE white extracted honey, white and alsike mixed. Case or ton lots.
Clyde Wheeler, 408 E. College St.,
Oberlin, Ohio.

NORTHERN MICHIGAN'S best honey in new 60-lb. cans. Sample 15c. Write for prices. L. C. House, Stambaugh, Mich.

HONEY—Quote price and mail sample. Will trade package bees for honey.
Van's Honey Farms, Hebron, Ind.

HONEY in 5 and 60-lb. tins.
Van's Honey Farms, Hebron, Ind.

FOR SALE—Comb, extracted and chunk honey. Prices on request. Samples 15c.
F. W. Summerfield, Waterville, Ohio.

OUR own crop, delicious Nebraska honey, thoroughly ripened. Six 10-pound pails, $9.00. C. F. Strahan, Linwood, Neb.

BEESWAX WANTED—We need large quantities of beeswax and are paying good prices now. Ship to us at Hamilton, Ill., or Keokuk, Iowa, or drop us a card and we will quote f. o. b. here or your own station, as you may desire. Dadant & Sons, Hamilton, Ill.

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Co.,
217 Broadway, New York.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans; also white alfalfa in cans. State quantity wanted and we will quote prices. Samples on request.
Dadant & Sons, Hamilton, Ill.

FOR SALE—White honey in 60-lb. cans; also Porto Rican in 50-gal. barrels. Samples and prices on request.
A. I. Root Co.,
16-18 Jay St, New York, N. Y.

FINE QUALITY clover honey. Prices upon request. State amount wanted.
C. S. Engle 1827 23rd St., Sioux City, Ia.

FOR SALE—White and water white sweet clover honey; put up in 5-gallon cans. Strictly first-class in every way. Write for prices, stating quantity wanted.
Dadant & Sons, Hamilton, Ill.

FOR SALE—Comb honey at reduced prices. State your wants.
H. G. Quirin, Bellevue, Ohio.

SUPPLIES

BEAR'S Mountain Bred Bees.

FOR SALE—Carlot new square five-gallon cans, 85c per case, made of No. 1 107-lb. tin plate, double seamed and soldered, guaranteed against leaks; 1¾-inch screw cap, cork lined; two cans in a case; smaller lots 95c a case. The Foster Honey and Merc. Co., Boulder, Colorado.

SPECIAL SALE—Bee hives and some other overstocked bee equipment. Send list of your wants, and get these bargain prices.
A G. Woodman Co., Grand Rapids, Mich.

FOR SALE — Second-hand 5-gallon cans. Only good cans offered. Two cans each case. Per 10 cases, $6.50; per 25 cases, $15. Ask for prices on quantity lot.
A. I. Root Co., 230 W. Huron St.,
Chicago, Ill.

FOR SALE — Cheap — Eight-frame Root power extractor. Going into other lines.
Address: Wisconsin Honey Farm,
Oconomowoc, Wis.

FOR SALE—Bee hives old and new; extractors, capping melters, saw tables. Cause, old age and poor health.
Geo. Stinebring, Shreve, Ohio.

HIVES, foundation, etc., cheap.
E. Hansen, 3900 So. Lipan, Englewood, Colo.

REXFORD Push-in Comb Introducing Cage. Sample 20c during April. Safe, automatic; no opening hive necessary after queen is in. Room for all combs; 35c each; 3, $1.00. O. S. Rexford, Winsted, Conn.

NEW AND USED comb honey supers metal hive tops; hive bottoms. All for ten-frame hives. Merton Church,
Highland Park, Ill.

MUST SACRIFICE 20 Modified Dadant hives with 20 extracting supers. All contain wired foundation new style slotted bottombar frames; metal and inner covers. Well painted; never used except 5 hives which contain drawn combs. Were bought brand new, spring 1924. Will sell the lot for $120; cost me over $240; must sell quick account financial condition. James Andrews,
R. F. D., Oriskany, New York.

"BEEWARE" and Dadant's Wired Foundation for the Northwest. Catalog prices. F. O. B. Fromberg, Montana. Beeswax wanted. Write for prices.
B. F. Smith, Jr., Fromberg, Mont.

SOUTHWESTERN distributor for Robinson's comb foundation.
Holloway Bros., Marietta, Okla.

FOR SALE—Good second-hand 60-lb. cans, two cans to a case, boxed. We have large stocks of these on hand. Please write for prices if interested. We are offering only good cans and good cases.
C. H. W. Weber & Co., Cincinnati, O.

ROBINSON'S COMB FOUNDATION will please the bees, and the price will please the beekeeper. Wax worked at lowest rates.
E. S. Robinson, Mayville, N. Y.

FOR SALE—Good second-hand 60-lb. cans, 2 in a case, at 50c per case, f. o. b. Dewey, Okla.
M. H. Hill, Dewey, Okla.

BEES FREE. Trap stray swarms. Circular free. Ed. Swenson,
Spring Valley, Minn.

WESTERN BEEKEEPERS—We can demonstrate that you can save money on buying bee supplies of best quality. Write for our latest price list.
The Colorado Honey Producers' Association,
Denver, Colo.

MISCELLANEOUS

BEAR'S Mountain Bred Bees.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.
American Bee Journal, Hamilton, Ill.

HAVE a Grebe radio set; cost $130; will exchange for honey, supplies, or—what?
Van Wyngarden Bros., Hebron, Ind.

J. P. HILL, please write B. F. Smith, Jr., Fromberg, Mont.

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, "Il Sistema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price $1.00.

WE HAVE NOW ON HAND, from Paris, a number of copies of the excellent work of Perret-Maisonneuve, in French, entitled "L'Apiculture Intensive & L'Elevage des Reines." The first shipment was delayed over two months. The price of this very progressive work is $1.50 by mail, prepaid.
American Bee Journal, Hamilton, Ill.

WESTERN HONEY BEE, 428 S. Hewitt St., Los Angeles, Calif., published by Western beekeepers, where commercial honey production is farther advanced than in any other section of the world. $1.00 per year. Send for sample copy.

GLEANINGS IN BEE CULTURE, published at Medina Ohio, is the most carefully edited bee journal in the world. Its editor-in-chief is Geo. S. Demuth. Its field editor is E. R. Root. Ask for sample copy.

MAKE queen introduction sure. One Safin cage by mail, 25c, 5 for $1.00.
Allen Latham, Norwichtown, Conn.

WANTED

BEAR'S Mountain Bred Bees.

WANTED—Young man to work in apiaries. State age, experience and wages expected.
Chas. Adams & Son, R. R. 4, Box 78,
Greeley, Colo.

CAN manage large apiary, familiar with farming and berries; single; Booze, tobacco—none. G. L., care American Bee Journal.

WANTED—Position—Refined young woman, good education desiring outdoor life for summer wishes room and board with intelligent Christian people keeping up-to-date apiary, poultry, sheep or fruit and vegetable farm. Anxious to assist and learn these agricultural pursuits.
Box S, care of American Bee Journal.

WANTED—To exchange a Hawaiian guitar for bees or equipment.
Enoch Anderson, Manahga, Minn.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering.
Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—Work in an apiary; 5 years' experience; no boozer; can give a good recommendation. C. O. Peel, Dayton, Iowa.

WANTED—Housekeeper in small family; have 100 stands of bees in up-to-date apiary; also fancy chickens; in town of 1,000 inhabitants. Please state age. Address, Box 67, Gardner, Ill.

WANTED—Experienced beeman to help in commercial beekeeping; state age, wages and weight. Oscar Skow, Dunlap, Iowa.

WANTED—Ten-frame bee supplies; state what you have also price.
Ben Steen, Manning, Iowa.

THE STAPLETON APIARIES
COLQUITT, GA.

Attention Beekeepers

THE STAPLETON APIARIES
COLQUITT, GA.

Last year I suffered a very heavy loss in a bank failure. In order to raise some ready money, I sold my bees at a great sacrifice during the past season. I succeeded in my purpose, having received orders for more bees than I could supply, but on footing up my business at the close of the season, I found that expenses just about balanced receipts, and in order to keep up the quality of bees and queens furnished, I am forced to raise prices slightly for another season. I quote the following prices for 1925 delivery:

1	2-lb. package with untested queen	$	4.25
10	2-lb. packages with untested queen		37.50
25	2-lb. packages with untested queen		90.00
50	2-lb. packages with untested queen		172.50
100	2-lb. packages with untested queen		320.00

1	3-lb. package with untested queen	$	5.25
10	3-lb. packages with untested queen		45.00
25	3-lb. packages with untested queen		108.75
50	3-lb. packages with untested queen		212.50
100	3-lb. packages with untested queen		400.00

2 and 3 frame nuclei at same prices as packages.

Tested queens 50 cents extra.

I have been in the bee business for 15 years and have the best stock of 3-band Italian bees I have been able to purchase or breed. No disease in this section, and inspector advises me that Georgia is now entirely free of foulbrood. Certificate of State Inspector with each shipment. I guarantee safe delivery and will replace or refund on receipt of bad order report from the express agent. I do not recommend shipment by parcel post, as it is unsatisfactory. 96 per cent of all shipments made by me the past season went through in first-class condition.

Shipment any time after April 1st, with 700 colonies from which to draw. I expect to need all of the early queens I can rear for packages and will not be in position to furnish queens alone until late in the season. I will not overbook and suggest that you place your orders early.

I have been local representative for R. G. Dun & Co. for nearly 20 years and refer to any bank or banker in this section of the state.

N. L. STAPLETON, COLQUITT, GA.

MONEY SAVED. TIME SAVED

BEE SUPPLIES

Roots Good, at factory prices with WEBER'S service. Send us a list of your wants and we will quote you prices that will save you money

C. H. W. WEBER & CO., CINCINNATI, OHIO

2163-65-67 CENTRAL AVENUE

Burr Combs

Variety Is the Spice of Life. Who Is Not Better for It?

By M. G. Dadant.

Excuse me, do you, do you radio? Are you a radio fan? Funny thing about these radio fans. They may be listening to the finest concert ever from KDKA at Pittsburgh, or KOA at Denver, or our old friend with the emulating voice at WLS, Sears-Roebuck, Shee-caw-go, but they cannot resist the temptation of fingering those little dials and swinging over to a nonsensical piece of jazz from another station, or fifteen words from an educational lecture beyond the confines of the fourth parcel post zone.

Variety, I guess. Variety is the spice of life. Yes, we even think so here in the office with the occasional letter we get from the bilious subscriber who tells us in no moderating tone of pen that A. B. J. is not what it used to be when it was not being published during the civil war. Or takes the other tack and insists that he isn't interested in pictures if we will only give him something about where he could find some of those old-time five-pound boxes like they used to use down in Missouri.

But, what I want to say is, that I found just a peck of variety down at the Illinois State Annual meeting at Springfield in December. I've been aching to tell about it, but Cale always had the paper made up a day or two before I was ready, so, naturally, I had to delay my contribution. The variety started before I hardly left home. Nice, warm weather, swinging to a blizzard, and the Wabash, that punctual train usually (or rather unusually) getting into Springfield just as the roosters were singing instead of just when the radio fans were going to bed.

You know there is just one place you can be sure you won't find any variety in the program of a beekeepers' meeting. They always nominate the same officers, at least the same secretary; the officers always refuse to be renominated—and it always ends up the same way. Same officers—same job.

But in our program we did have variety. Morley Pettit, tall and lank, and Huber Root, short and stubby. Wallace Park, who shaves every day, and C. P. D., who has only had one (and that was before my time). Corpulent Snyder and Slender Hambleton; let alone the variety among us listeners coming from all parts of our state.

But it wasn't alone in stature that our program artists had variety; they had it, too, in subject, and they mixed in a little wit so that we might more easily digest the meat.

Morley Pettit told about the woman who removed all the spots from her husband's trousers, even down to the last five-spot.

And Hambleton, of Washington fame, retarded digestion by telling at the dinner table about the new delicacy in the shape of dishes when he recited what P. J. Baldensperger had told him about regaling guests with the finest dish of all—drone omelet—ripe young drones, just ready to have a seal put on their cells, are removed, fried and a little dressing applied, served on the side—oh my—yum yum. At least they are claimed to be a delicacy, and how can we tell till we try?

Perhaps, after all, we will be sorry of all these non-sag foundations and systems of wiring. We may grow to want our little delicacy of drones for lunch, and where will we be if our choice colonies do not produce them in sufficient quantities for our own table, let alone to feed to our mother-in-law when she comes to call?

Even C. P. D. added variety when, during the program, someone told how his neighbor with large hives had more swarms than with small ones.

"Here's where I fight," says he. You never would have guessed that he had seen the snows of seventy-two winters by the time he laid low that old ghost that large hives could control everything from pip in chickens to the bray of a Kansas jackass, regardless of ulterior restrictions saddled upon them by the small hive man.

Yes, let us not forget that variety is the spice of life. Isn't it possibly true that this very same variety interspersed at the proper time makes the serious worth while?

Aren't we, all of us, inclined to look at the dollars and cents sordid aspect of life; become cynical critics instead of happy optimists? "Jollying" your cut rate honey neighbor, instead of railing at him, may, after all, bring the best results.

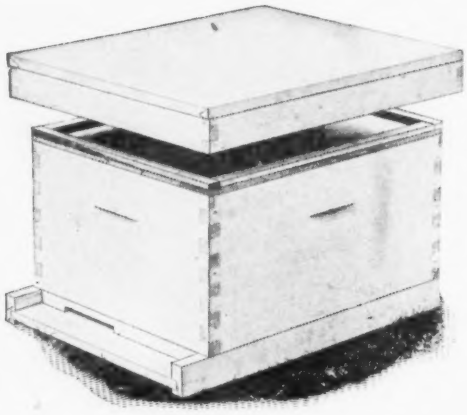
Talking about drone omelet reminds me of E. B. Weed, who invented the machinery for manufacturing Weed process comb foundation. Practically all foundation manufactured today is made by this process. Mr. Weed spent considerable time with us at Hamilton, experimenting with different machines before he finally hit upon the solution of the problem.

I was just a "kid" then, and what impressed me most was Mr. Weed stirring the hot wax and telling of how he and two comrades had partaken of boiled skunk, and evidently eaten it with relish, though the pathway to the finished dish had been beset with numerous thorns along the way.

Yes, Weed also evidently liked variety.

As I write this, I am reminded that I, also am getting my variety. A little siege of what I would call "broken back"; but the doctor has a more high-sounding name—sciatica. It has its recompense. To lie here and take it easy, when your back lets you, while the rest of the force work—that's what I call variety with a vengeance.

Especially so when the meals taste so good and are placed directly before you, so that all you need do is to readjust your creaking vertebrae. Why, I even feel as if some of that drone omelet would go fine. Unfortunately it's winter, the drones are yet to be reared, and, besides, I doubt the Irish cook would let my palate be tickled by preparing such a dish.



When You Go to Buy a Hive

When you go to buy a hive, what would you like to know about it?

Would it mean something to you to know that the man who builds your hive has been very carefully studying the subject of hives for a good many years?

Would it mean something to you also to know that this man is honest and tells you he has bought for your hive the best hive lumber to be had?

Would it make you a little surer of having a good hive if this hive builder tells you that he considers every detail important in the making of a hive?

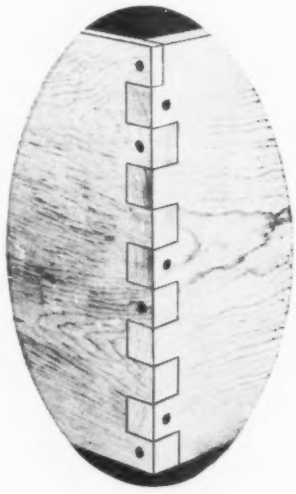
It would, wouldn't it?

Now we have been building hives and studying hives for about 50 years, and we are attending to every last detail of hive building. For instance, we have folded the metal cover without notching, a small detail but important, so that you would have a cover with no sharp corners and one that would not leak.

We have matched the boards in the cover and rabbeted them into the rim all around, a small detail but important, so that any warping due to moisture in the hive could not take place and cause water pockets on the metal cover.

We have given a great deal of thought to the inner cover, building it now with a rim of full thickness lumber dovetailed at the corners, small details but very important when you consider that we make the strongest and most rigid inner cover today.

The dovetailed corner of the hive are wonderfully made, so constructed that they fit tight, accurately and produce a smooth corner. Smooth cuts are easier to paint. All dovetailed sides and ends are checked against a steel gauge which insures accuracy at all times.



The handle holes in the side are smooth cut, a small detail, but less paint is necessary. The metal rabbet is made of heavy gauge galvanized steel with a single fold set into the end of the hive, its construction being easier to nail.

No detail about a hive too small for us to look after.

Send for our 1925 catalog.

THE A. I. ROOT CO., Medina, Ohio

WEST SIDE STATION